CANADIAN JOURNAL OF BOTANY

JOURNAL CANADIEN DE BOTANIQUE

VOLUME 55, 1977

Author Index/Index des auteurs

Under each name are listed, in chronological order of publication, all articles in which an author has participated/Chaque notice indique, dans l'ordre chronologique de publication, tous les articles auxquels l'auteur a participé

Aarssen, L.W.
Neighbour relationships in grass–legume communities. I. Interspecific contacts in four grassland communities near London, Ontario
ROY A. TURKINGTON, PAUL B. CAVERS, and LONNIE W. AARSSEN 2701

Agarwala, S.C.
Relative effectiveness of certain heavy metals in producing toxicity and symptoms of iron deficiency in barley
S.C. AGARWALA, S.S. BISHT, and C.P. SHARMA 1299

Aikman, D.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY 1787

Aldrich, H.C.
Cytology and ultrastructure of *Thanatephorus cucumeris* and related taxa of the *Rhizoctonia* complex
C.C. TU, JAMES W. KIMBROUGH, and H.C. ALDRICH 2419

Aldwinckle, H.S.
Teliospore germination and basidiospore formation in *Gymnosporangium juniperi-virginianae*: a regression model of temperature and time effects
R.C. PEARSON, H.S. ALDWINCKLE, and R.C. SEEM 2832

Allen, W.R.
Properties of the single protein and two nucleic acids of tomato ring-spot virus
WAYNE R. ALLEN and H.F. DIAS 1028

Alvarez, I.F.
Mycorrhizae of *Abies concolor* in California
ISABEL F. ALVAREZ and FIELDS W. COBB, JR. 1345

Anderson, H.W.
Defect development in second-growth sugar maple in Ontario. I. Microfloral infection relationships associated with dead branches
J.T. BASHAM and H.W. ANDERSON 934

Andrews, J.H.
Observations on the pathology of seaweeds in the Pacific Northwest
JOHN H. ANDREWS 1019

Andrus, R.E.
The genus *Sphagnum* in Alberta
DALE H. VITT and RICHARD E. ANDRUS 331

Angulo, M.D.
A new basic chromosome number in the genus *Lotus*
M.D. ANGULO and M.C. REAL 1848

Apostolakos, P.
On the fine structure of differentiating mucilage papillae of *Marchantia*
B. GALATIS and P. APOSTOLAKOS 772

Armstrong, K.C.
Embryogenesis and plant regeneration in *Brassica napus* anther cultures
W.A. KELLER and K.C. ARMSTRONG 1383

Arnason, T.
Polychlorinated biphenyls and their effects on photosynthesis and respiration
J. SINCLAIR, S. GARLAND, T. ARNASON, P. HOPE, and M. GRANVILLE 2679

Arnold, R.M.
Effects of 15% CO_2 on the accumulation of the phytoalexin phaseollin in *Phaseolus vulgaris* in response to mechanical injury and to infection by *Colletotrichum lindemuthianum*
ROBERT M. ARNOLD and JAMES E. RAHE 867

Ashtakala, S.S.
Metabolism and translocation of 3-amino-1,2,4-triazole in *Pinus pinea*
G. LULHAM, S.S. ASHTAKALA, and J.A. LENOIR 2296

Asina, S.
Factors influencing ascospore germination in three species of *Sporormiella*
SHIRIN ASINA, KANTI JAIN, and R.F. CAIN 1908

Factors influencing growth and ascocarp production in three species of *Sporormiella*
SHIRIN ASINA, KANTI JAIN, and R.F. CAIN 1915

Askew, B.
New evidence of close relationships between *Radiigera* and *Geastrum* (Lycoperdales)
BLAIN ASKEW and ORSON K. MILLER, JR. **2693**

Aslam, M.
Effect of leaf age on photosynthesis and transpiration of cassava (*Manihot esculenta*)
M. ASLAM, S.B. LOWE, and L.A. HUNT **2288**

Ayling, R.D.
Anatomical and histochemical changes in germinating seeds of *Pinus radiata* treated with Tordon herbicides
R.D. AYLING **1359**

Bacon, C.W.
Classification of *Myriogenospora* in the Clavicipitaceae
E.S. LUTTRELL and CHARLES W. BACON **2090**

Badour, S.S.
Regulation of isocitrate metabolism in *Chlamydomonas segnis*
SAMUEL S.K. FOO and SAMIR S. BADOUR **2178**

Baker, K.L.
Ultrastructural development of merosporangia in the mycoparasite *Syncephalis sphaerica* (Mucorales)
K.L. BAKER, G.R. HOOPER, and E.S. BENEKE **2207**

Baker, R.J.
Histological studies on host-cell necrosis conditioned by the *Sr6* gene for resistance in wheat to stem rust
D.J. SAMBORSKI, W.K. KIM, R. ROHRINGER, N.K. HOWES, and R.J. BAKER **1445**

Bal, A.K.
Effects of auxins and chemically related non-auxins on photosynthesis and chloroplast ultrastructure in *Alaria esculenta* (Laminariales)
R.G. BUGGELN and A.K. BAL **2098**

Barker, W.G.
Oxygen transport rates through mats of *Lemma minor* and *Wolffia* sp. and oxygen tension within and below the mat
P.F. MORRIS and W.G. BARKER **1926**

The conversion of [2-^{14}C]mevalonic acid into triterpenes and tetraterpenes by cell-free extracts of a *Neurospora crassa* albino mutant
G.S. BOBOWSKI, W.G. BARKER, and R.E. SUBDEN **2137**

Barlocher, F.
Colonization of rosin-coated slides by aquatic hyphomycetes
FELIX BARLOCHER, BRYCE KENDRICK, and JOHN MICHAELIDES **1163**

Barnard, E.L.
Respiration of field-grown loblolly pine roots as influenced by temperature and root type
E.L. BARNARD and J.R. JORGENSEN **740**

Barnes, B.V.
Genetic diversity of yellow birch seedlings in Michigan
KENNETH A. WEARSTLER, JR. and BURTON V. BARNES **2778**

Comparative reproductive ability of bigtooth and trembling aspen and their hybrid
ROBERT M. HENRY and BURTON V. BARNES **3093**

Barr, D.J.S.
Zoospore ultrastructure of *Olpidium brassicae* and *Rhizophlyctis rosea*
D.J.S. BARR and V.E. HARTMANN **1221**

Zoospore ultrastructure of *Olpidium cucurbitacearum* (Chytridiales)
D.J.S. BARR and V.E. HADLAND-HARTMANN **3063**

Barron, G.L.
Nematophagous fungi: *Protascus* and its relationship to *Myzocytium*
G.L. BARRON **819**

Nematophagous fungi: a new *Harposporium* parasitic on *Prismatolaimus*
G.L. BARRON **892**

Nematophagous fungi: *Hohenbuehelia*, the perfect state of *Nematoctonus*
G.L. BARRON and Y. DIERKES **3054**

Basham, J.T.
Defect development in second-growth sugar maple in Ontario. I. Microfloral infection relationships associated with dead branches
J.T. BASHAM and H.W. ANDERSON **934**

Basinger, J.F.
Anatomically preserved plants from the Middle Eocene (Allenby Formation) of British Columbia
JAMES F. BASINGER and GAR W. ROTHWELL **1984**

Baum, B.R.
Taxonomy of the tribe Triticeae (Poaceae) using various numerical techniques. I. Historical perspectives, data accumulation, and character analysis
BERNARD R. BAUM **1712**

Bauman, L.F.
Characterization of augmented potassium uptake in the seedling primary root of inbred maize (*Zea mays*)
HUGH FRICK, RALPH L. NICHOLSON, and LOYAL F. BAUMAN **1128**

Beauchamp, J.J.
Spatial and temporal patterns in transport and respiratory allocation of [^{14}C]sucrose by white oak (*Quercus alba*)
S.B. MCLAUGHLIN, N.T. EDWARDS, and J.J. BEAUCHAMP **2971**

Beck, A.R.
Cytology and breeding behaviour of some *Impatiens* hybrids and their backcross progeny
DAVID W. PASUTTI, JACK L. WEIGLE, and ALLEN R. BECK 296

Bell, J.
A developmental study of the stamens in a male-sterile tobacco hybrid
G.S. HICKS, J. BELL, and S.A. SAND 2234

Benedict, W.G.
Effect of soil temperature on the pathology of *Alternaria radicina* on carrots
W.G. BENEDICT 1410

Patterns of conidial release by *Helminthosporium turcicum* on sweet corn under controlled environmental conditions
R.A. PALMERLEY and W.G. BENEDICT 1991

Beneke, E.S.
Ultrastructural development of merosporangia in the mycoparasite *Syncephalis sphaerica* (Mucorales)
K.L. BAKER, G.R. HOOPER, and E.S. BENEKE 2207

Bergmann, F.
Variation and genetics of ribonucleases and phosphodiesterases in conifer seeds
L. MEJNARTOWICZ and F. BERGMANN 711

Bernard, J.M.
Nutrient cycling in a *Carex lacustris* wetland
JOHN M. BERNARD and BETSY A. SOLSKY 630

Bernard-Dagan, C.
Variations qualitatives et quantitatives des carbures terpéniques au cours de la croissance des rameaux et des aiguilles du Pin maritime: étude comparée de huit phénotypes
C. ZIMMERMANN-FILLON et C. BERNARD-DAGAN 1009

Bernillon, J.
Identification chimique de styryl-pyrones chez quatre hyménochétacées (Champignons, Aphyllophorales)
JEAN-LOUIS FIASSON et JACQUES BERNILLON 2984

Bernstein, M.E.
Internal fungi in old-growth Douglas fir foliage
MARY E. BERNSTEIN and GEORGE C. CARROLL 644

Berryman, A.A.
Host resistance to the fir engraver beetle. 3. Lesion development and containment of infection by resistant *Abies grandis* inoculated with *Trichosporium symbioticum*
BETTY L. WONG and ALAN A. BERRYMAN 2358

Bhat, D.J.
Bahusutrabeeja, a new genus of the Hyphomycetes
C.V. SUBRAMANIAN and D. JAYARAMA BHAT 2202

Bidwell, R.G.S.
Photosynthesis and light and dark respiration in freshwater algae
R.G.S. BIDWELL 809

An investigation of photosynthetic sucrose production in bean leaves
S.C. FRY and R.G.S. BIDWELL 1457

Binder, F.L.
Canavanine utilization by *Phytophthora* sp.
T.E. WEAKS and F.L. BINDER 1322

Bird, C.D.
Bryophytes from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada
CHARLES D. BIRD, GEORGE W. SCOTTER, WILLIAM C. STEERE, and ALFRED H. MARSH 2879

Bird, N.
Studies on *Gracilaria*. 5. In vitro life history of *Gracilaria* sp. from the Maritime Provinces
N. BIRD, J. MCLACHLAN, and D. GRUND 1282

Birks, H.J.B.
Modern pollen rain and vegetation of the St. Elias Mountains, Yukon Territory
H.J.B. BIRKS 2367

Birmingham, B.C.
The effect of two organophosphate insecticides on the growth of freshwater algae
BRENDAN C. BIRMINGHAM and BRIAN COLMAN 1453

Bisalputra, T.
Mitosis and cell division of *Cryptomonas* (Cryptophyceae)
BERL R. OAKLEY and THANA BISALPUTRA 2789

Bisaria, A.K.
Effect of a morphactin on growth, sex expression, fruit-set, and yield in *Luffa acutangula*
A.K. BISARIA 752

Bisht, S.S.
Relative effectiveness of certain heavy metals in producing toxicity and symptoms of iron deficiency in barley
S.C. AGARWALA, S.S. BISHT, and C.P. SHARMA 1299

Black, T.A.
Controlling soil water matric potential in root disease studies
B.D. WISBEY, T.A. BLACK, and R.J. COPEMAN 825

Bland, C.E.
Biology and host range of *Haliphthoros milfordensis*
T.P. THARP and C.E. BLAND 2936

Bobowski, G.S.
The conversion of [2-^{14}C]mevalonic acid into triterpenes and tetraterpenes by cell-free extracts of a *Neurospora crassa* albino mutant
G.S. BOBOWSKI, W.G. BARKER, and R.E. SUBDEN 2137

Bockelman, H.E.
Trisomic analysis of genes for resistance to scald and net blotch in several barley cultivars
H.E. BOCKELMAN, E.L. SHARP, and R.F. ESLICK 2142

Bohaychuk, W.P.
Variation of *Polyporus tomentosus* in cultural characteristics and pathogenicity on conifer seedlings
R.D. WHITNEY and W.P. BOHAYCHUK 1389

Bohm, L.R.
Embryology of *Festuca microstachys* (Gramineae)
JACK MAZE and LESLEY R. BOHM 1768

Bonettemaker, M.
Cell growth, wall deposition, and correlated fine structure of colchicine-treated lettuce hypocotyl cells
L.M. SRIVASTAVA, V.K. SAWHNEY, and M. BONETTEMAKER 902

Bonfante-Fasolo, P.
Unusual plastids in an endomycorrhizal root
SILVANO SCANNERINI and PAOLA BONFANTE-FASOLO 2471

Bonga, J.M.
A glycerine–water–DMSO–carmine stain used to determine the effect of IPC, EDTA, and aeration on the accumulation of metaphase figures in root tips of *Pinus resinosa*
J.M. BONGA 1696

Bown, A.W.
An investigation into the influence of IAA and malate on in vivo and in vitro rates of dark carbon dioxide fixation in coleoptile tissue
I.J. DYMOCK, B. HILL, and A.W. BOWN 1641

Bradbury, I.K.
Assimilate distribution patterns and carbohydrate concentration changes in organs of *Solidago canadensis* during an annual developmental cycle
IAN K. BRADBURY and G. HOFSTRA 1121

Brisson, J.D.
Ultrastructure of wilt syndrome caused by *Verticillium dahliae*. III. Chronological symptom development in sunflower leaves
JANE ROBB, LLOYD BUSCH, JEAN D. BRISSON, and B.C. LU 139

Root cap structure in the fern *Ophioglossum petiolatum*: light and electron microscopy
R.L. PETERSON and J.D. BRISSON 1861

Bristow, J.M.
Photosynthesis and photorespiration in submerged aquatic vascular plants
N.D.H. LLOYD, D.T. CANVIN, and J.M. BRISTOW 3001

Brodie, H.J.
Spore morphology in the Nidulariaceae (fungi) as revealed by the scanning electron microscope
HAROLD J. BRODIE and H.F. DIETRICH 3042

Brown, G.N.
Compositional analysis of the photosynthetic membrane system of western hemlock chloroplasts
DAVID R. DEYOE and GREGORY N. BROWN 2399

Brown, M.F.
The influence of fixation procedure on the ultrastructure of the host–endophyte interface of vesicular-arbuscular mycorrhizae
D.E. CARLING, J.A. WHITE, and M.F. BROWN 48

Buck, W.R.
A new species of *Selaginella* in the *S. apoda* complex
WILLIAM R. BUCK 366

Buggeln, R.G.
Effects of auxins and chemically related non-auxins on photosynthesis and chloroplast ultrastructure in *Alaria esculenta* (Laminariales)
R.G. BUGGELN and A.K. BAL 2098

Busch, L.
Ultrastructure of wilt syndrome caused by *Verticillium dahliae*. III. Chronological symptom development in sunflower leaves
JANE ROBB, LLOYD BUSCH, JEAN D. BRISSON, and B.C. LU 139

Buttrick, S.C.
The alpine flora of Teresa Island, Atlin Lake, B.C., with notes on its distribution
STEVEN C. BUTTRICK 1399

Cain, R.F.
New species and new records of *Delitschia* from Venezuela
R.S. JENG, E.R. LUCK-ALLEN, and R.F. CAIN 383

Factors influencing ascospore germination in three species of *Sporormiella*
SHIRIN ASINA, KANTI JAIN, and R.F. CAIN 1908

Factors influencing growth and ascocarp production in three species of *Sporormiella*
SHIRIN ASINA, KANTI JAIN, and R.F. CAIN 1915

Caldwell, W.G.E.
A new dasycladacean alga associated with the 'Arctic Ordovician' fauna on Cornwallis Island
D.G. LEE and W.G.E. CALDWELL 52

Callaham, D.
Prenodule formation and primary nodule development in roots of *Comptonia* (Myricaceae)
DALE CALLAHAM and JOHN G. TORREY 2306

Calmés, J.
Variation saisonnière des cristaux d'oxalate de calcium des tissus de Vigne vierge
JEAN CALMÉS et MICHEL PIQUEMAL 2075

Cameron, I.F.
The effect of pH and ABA on the hydraulic conductivity of *Nitella* membranes
G.N.St.G. ORD, I.F. CAMERON, and D.S. FENSOM 1

Camp, R.R.
Association of microbodies, Woronin bodies, and septa in intercellular hyphae of *Cymadothea trifolii*
RUSSELL R. CAMP **1856**

Canvin, D.T.
Photosynthesis and photorespiration in submerged aquatic vascular plants
N.D.H. LLOYD, D.T. CANVIN, and J.M. BRISTOW **3001**

Photosynthesis and photorespiration in sunflower selections
N.D.H. LLOYD and D.T. CANVIN **3006**

Carey, K.
Outcrossing rates in natural populations of *Plectritis brachystemon* (Valerianaceae)
FRED R. GANDERS, KEN CAREY, and A.J.F. GRIFFITHS **2070**

Carling, D.E.
The influence of fixation procedure on the ultrastructure of the host–endophyte interface of vesicular-arbuscular mycorrhizae
D.E. CARLING, J.A. WHITE, and M.F. BROWN **48**

Carroll, G.C.
Internal fungi in old-growth Douglas fir foliage
MARY E. BERNSTEIN and GEORGE C. CARROLL **644**

Catling, P.M.
Factors maintaining a disjunct community of *Liatris spicata* and other prairie species in Ontario, Canada
T.M. ROBERTS, T. ROBSON, and P.M. CATLING **593**

Cavers, P.B.
Neighbour relationships in grass–legume communities. I. Interspecific contacts in four grassland communities near London, Ontario
ROY A. TURKINGTON, PAUL B. CAVERS, and LONNIE W. AARSSEN **2701**

Chabot, B.F.
Ultrastructure of the epidermis and stomatal complex of balsam fir (*Abies balsamea*)
JEAN FINCHER CHABOT and BRIAN F. CHABOT **1064**

Chabot, J.F.
Ultrastructure of the epidermis and stomatal complex of balsam fir (*Abies balsamea*)
JEAN FINCHER CHABOT and BRIAN F. CHABOT **1064**

Chamberland, H.
Formes d'inclusions osmiophiles dans les cellules de *Ceratocystis ulmi*
HÉLÈNE CHAMBERLAND et G.B. OUELLETTE **695**

Caractéristiques ultrastructurales de *Ceratocystis ulmi* en milieux naturel et artificiel
HÉLÈNE CHAMBERLAND et G.B. OUELLETTE **1579**

Chandrashekara, K.V.
Beejasamuha and *Sutravarana*, two new genera of coprophilous hyphomycetes
C.V. SUBRAMANIAN and K.V. CHANDRASHEKARA **245**

Cheeseman, J.M.
Electrical characteristics of cells from leaves of *Lycopersicon*
JOHN M. CHEESEMAN and BARBARA G. PICKARD **497**

Depolarization of cell membranes in leaves of *Lycopersicon* by extract containing Ricca's factor
JOHN M. CHEESEMAN and BARBARA G. PICKARD **511**

Chet, I.
Physiological and ultrastructural changes occurring during germination of sclerotia of *Sclerotium rolfsii*
I. CHET, D. TIMAR, and Y. HENIS **1137**

Cheung, Y.N.S.
Resistance to water flow in *Fagus grandifolia* leaves
M.T. TYREE and Y.N.S. CHEUNG **2591**

Chevallier, D.
Interactions entre mitochondries et chloroplastes dans la cellule. II. Action du DBMIB, de l'antimycine A et du FCCP sur la spore de *Funaria hygrometrica*
D. CHEVALLIER, R. DOUCE et F. NURIT **1650**

Chiykowski, L.N.
Reduction in the transmissibility of a greenhouse-maintained isolate of aster yellows agent
L.N. CHIYKOWSKI **1783**

Chong, J.
Ultrastructure of the appressorium of *Spilocaea pomi*
MICHAEL CORLETT and JAMES CHONG **5**

Clancy, F.G.
Acid phosphatase and protease release by the insectivorous plant *Drosera rotundifolia*
FINBARR G. CLANCY and MICHAEL D. COFFEY **480**

Cobb, F.W., Jr.
Mycorrhizae of *Abies concolor* in California
ISABEL F. ALVAREZ and FIELDS W. COBB, JR. **1345**

Coffey, M.D.
Acid phosphatase and protease release by the insectivorous plant *Drosera rotundifolia*
FINBARR G. CLANCY and MICHAEL D. COFFEY **480**

A fine-structural study of the pea downy mildew fungus *Peronospora pisi* in its host *Pisum sativum*
EDWARD L. HICKEY and MICHAEL D. COFFEY **2845**

Cohen, Y.
The combined effects of temperature, leaf wetness, and inoculum concentration on infection of cucumbers with *Pseudoperonospora cubensis*
YIGAL COHEN **1478**

Colman, B.
The effect of two organophosphate insecticides on the growth of freshwater algae
BRENDAN C. BIRMINGHAM and BRIAN COLMAN 1453

Colotelo, N.
Perithecia and spore liberation of *Claviceps purpurea*: scanning electron microscopy
NICHOLAS COLOTELO and WENDY COOK 1257

Fungal exudates. I. Characteristics of hyphal exudates in *Fusarium culmorum*
W.J. MCPHEE and N. COLOTELO 358

Cook, W.
Perithecia and spore liberation of *Claviceps purpurea*: scanning electron microscopy
NICHOLAS COLOTELO and WENDY COOK 1257

Copeman, R.J.
Controlling soil water matric potential in root disease studies
B.D. WISBEY, T.A. BLACK, and R.J. COPEMAN 825

Coquen, C.
Valeur morphologique de l'involucre du cyathe chez le genre *Euphorbia*: étude expérimentale
C. COQUEN 2106

Corlett, M.
Ultrastructure of the appressorium of *Spilocaea pomi*
MICHAEL CORLETT and JAMES CHONG 5

Cotts, R.M.
The diffusional water permeability of *Elodea* leaf cells as measured by nuclear magnetic resonance
DARRYL G. STOUT, ROBERT M. COTTS, and PETER L. STEPONKUS 1623

Courtin, G.M.
The effects of soil factors on the distribution of *Agrostis gigantea* on a mine waste site
GARY D. HOGAN, GERARD M. COURTIN, and WILFRIED E. RAUSER 1038

Copper tolerance in clones of *Agrostis gigantea* from a mine waste site
GARY D. HOGAN, GERARD M. COURTIN, and WILFRIED E. RAUSER 1043

Crane, J.L.
Revision of *Torula* species. *Rutola*, a new genus for *Torula graminis*
J.L. CRANE and JEAN D. SCHOKNECHT 3013

Cromack, K., Jr.
Effect of habitat and substrate quality on Douglas fir litter decomposition in western Oregon
ROBERT FOGEL and KERMIT CROMACK, JR. 1632

Csinos, A.
Nonparasitic stunting of tobacco plants by *Phytophthora cryptogea*
ALEX CSINOS and JAMES W. HENDRIX 26

Toxin produced by *Phytophthora cryptogea* active on excised tobacco leaves
ALEX CSINOS and JAMES W. HENDRIX 1156

Curtis, J.D.
Preliminary report of outer wall helices in trichomes of certain dicots
NELS R. LERSTEN and JOHN D. CURTIS 128

Cuthbert, J.
Separation of horseradish peroxidase isoenzymes by preparative polyacrylamide gel electrophoresis
SHEIKH A. SAEED and JOSEPHINE CUTHBERT 2474

Cwynar, L.C.
The recent fire history of Barron Township, Algonquin Park
LES C. CWYNAR 1524

D'Ambra, V.
The ultrastructure of *Polymyxa betae* zoospore exit-tube differentiation
V. D'AMBRA and S. MUTTO 831

Da, S.
Influence de la sécheresse sur la morphologie du système racinaire du *Carex setifolia*
S. DA, C. HUBAC et N. VARTANIAN 1236

Daggett, P.-M.
Cryopreservation of flagellar mutants of *Chlamydomonas reinhardtii*
MARIAN S. MCGRATH and PIERRE-MARC DAGGETT 1794

Dainty, J.
A new method for measurement of hydraulic conductivity and elastic coefficients in higher plant cells using an external force
J.M. FERRIER and J. DAINTY 858

Cell wall elastic properties of *Chara corallina*
H. VINTERS, J. DAINTY, and M.T. TYREE 1933

Dale, H.M.
The influence of submersed aquatic plants on temperature gradients in shallow water bodies
H.M. DALE and T.J. GILLESPIE 2216

Dale, J.E.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY 1787

Dalpé, Y.
L'induction chez *Ceratocystis* de fructifications de types Graphium et Leptographium par des acides gras insaturés
YOLANDE DALPÉ et PETERJÜRGEN NEUMANN 2159

Dargent, R.
Effets de la carence en biotine sur la composition des parois cellulaires d'*Hypomyces chlorinus*
J.M. TOUZÉ-SOULET et R. DARGENT 227

Localisation et comportement du mycélium de *Taphrina deformans* dans le mésophylle et sous la cuticule des feuilles de pêcher (*Prunus persica*)
ALAIN SCHNEIDER et ROBERT DARGENT 2485

Davis, E.L.
Experimental studies on the shoot apex of *Helianthus annuus*: the effect of surgical bisection on quiescent cells in the apex
E.L. DAVIS and T.A. STEEVES 606

Genetic damage to a fern population growing in a polluted environment: segregation and description of gametophyte mutants
EDWARD J. KLEKOWSKI, JR. and
EDWARD L. DAVIS 542

de la Roche, A.I.
Isolation of protoplasts from unhardened and hardened tissues of winter rye and wheat
A. IAN DE LA ROCHE, W.A. KELLER, J. SINGH, and
D. SIMINOVITCH 1181

Deal, C.L.
Preliminary characterization of peroxidase isozymes isolated from two flax genotrophs
M.A. FIELDES, C.L. DEAL, and H. TYSON 1465

Delon, R.
Ultrastructural study of host–parasite interactions. II. Decay of lettuce caused by *Botrytis cinerea* and phyllosphere bacteria
RENÉ DELON, ETIENNE KIFFER, and
FRANÇOIS MANGENOT 2463

Denford, K.E.
A study of the flavonoids of the *Potentilla pensylvanica* complex in North America
B.L. KOHLI and K.E. DENFORD 476

A contribution to the taxonomy of *Antennaria alpina* var. *media*, *A. microphylla*, and *A. umbrinella* in western North America
GEORGE W. DOUGLAS, KEITH E. DENFORD, and
ILANA KARAS 925

Dengler, N.G.
Mesophyll cell walls in hemlock, *Tsuga canadensis*
R. FISCHER and N.G. DENGLER 1510

des S. Thomas, D.
Rapid cytoplasmic responses of oat coleoptiles to cytochalasin B, auxin, and colchicine
D. DES S. THOMAS, D.M. DUNN, and
R.W. SEAGULL 1797

DeYoe, D.R.
Compositional analysis of the photosynthetic membrane system of western hemlock chloroplasts
DAVID R. DEYOE and GREGORY N. BROWN 2399

Dias, H.F.
Properties of the single protein and two nucleic acids of tomato ring-spot virus
WAYNE R. ALLEN and H.F. DIAS 1028

DiCosmo, F.
A revision of *Monochaetiella* (Deuteromycotina)
B.C. SUTTON and FRANK DICOSMO 2535

Dierkes, Y.
Nematophagous fungi: *Hohenbuehelia*, the perfect state of *Nematoctonus*
G.L. BARRON and Y. DIERKES 3054

Dietrich, H.F.
Spore morphology in the Nidulariaceae (fungi) as revealed by the scanning electron microscope
HAROLD J. BRODIE and H.F. DIETRICH 3042

DiMichele, W.A.
Monocyclic *Psaronius* from the lower Pennsylvanian of the Illinois Basin
WILLIAM A. DIMICHELE and TOM L. PHILLIPS 2514

Douce, R.
Interactions entre mitochondries et chloroplastes dans la cellule. II. Action du DBMIB, de l'antimycine A et du FCCP sur la spore de *Funaria hygrometrica*
D. CHEVALLIER, R. DOUCE et F. NURIT 1650

Douglas, G.W.
A contribution to the taxonomy of *Antennaria alpina* var. *media*, *A. microphylla*, and *A. umbrinella* in western North America
GEORGE W. DOUGLAS, KEITH E. DENFORD, and
ILANA KARAS 925

Dowsett, J.A.
Transmission and scanning electron microscope observations on the trapping of nematodes by *Dactylaria brochopaga*
JAMES A. DOWSETT, J. REID, and
L. VAN CAESEELE 2945

Light microscope observations on the trapping of nematodes by *Dactylaria candida*
JAMES A. DOWSETT and J. REID 2956

Transmission and scanning electron microscope observations on the trapping of nematodes by *Dactylaria candida*
JAMES A. DOWSETT and J. REID 2963

Drew, A.P.
Morphological acclimation to light intensity in Douglas-fir seedlings
ALLAN P. DREW and WILLIAM K. FERRELL **2033**

Drinkwater, A.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY **1787**

Driss-Ecole, D.
Influence de la photopériode sur le comportement du méristème caulinaire du *Celosia cristata*
D. DRISS-ECOLE **1488**

Dunn, D.M.
Rapid cytoplasmic responses of oat coleoptiles to cytochalasin B, auxin, and colchicine
D. DES S. THOMAS, D.M. DUNN, and R.W. SEAGULL **1797**

Dunphy, G.B.
Regeneration of protoplasts of *Entomophthora egressa*, a fungal pathogen of the eastern hemlock looper
GARY B. DUNPHY and RICHARD A. NOLAN **107**

Morphogenesis of protoplasts of *Entomophthora egressa* in simplified culture media
GARY B. DUNPHY and RICHARD A. NOLAN **3046**

Dymock, I.J.
An investigation into the influence of IAA and malate on in vivo and in vitro rates of dark carbon dioxide fixation in coleoptile tissue
I.J. DYMOCK, B. HILL, and A.W. BOWN **1641**

Edwards, N.T.
Spatial and temporal patterns in transport and respiratory allocation of [^{14}C]sucrose by white oak (*Quercus alba*)
S.B. MCLAUGHLIN, N.T. EDWARDS, and J.J. BEAUCHAMP **2971**

Elder, M.
Characteristics of clover primary leaf necrosis virus, a new spherical isolate from *Trifolium pratense*
H.W.J. RAGETLI and M. ELDER **2122**

Ellis, D.H.
The fine structure of conidiogenesis in *Alysidium resinae* (= *Torula ramosa*)
D.H. ELLIS and D.A. GRIFFITHS **676**

Ellis, J.J.
Zygosporogenesis in *Gilbertella persicaria*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER **662**

Azygosporogenesis in *Mucor azygosporus*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER **2712**

Morphogenesis of azygospores induced in *Gilbertella persicaria* (+) by imperfect hybridization with *Rhizopus stolonifer* (-)
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER **2721**

Endress, A.G.
Adhesion of the Boston ivy tendril
ANTON G. ENDRESS and WILLIAM W. THOMSON **918**

Eslick, R.F.
Trisomic analysis of genes for resistance to scald and net blotch in several barley cultivars
H.E. BOCKELMAN, E.L. SHARP, and R.F. ESLICK **2142**

Evans, H.C.
Sporodiniella umbellata, an entomogenous fungus of the Mucorales from cocoa farms in Ecuador
HARRY C. EVANS and ROBERT A. SAMSON **2981**

Evans, R.C.
Sporulation and peroxidase in *Bipolaris maydis*: effects of xylose and thiamine
M.O. GARRAWAY and R.C. EVANS **1996**

Farr, E.R.
Biosystematic studies in the genus *Pholiota*, stirps *Adiposa*
ELLEN R. FARR, ORSON K. MILLER, JR., and DAVID F. FARR **1167**

Farr, D.F.
Biosystematic studies in the genus *Pholiota*, stirps *Adiposa*
ELLEN R. FARR, ORSON K. MILLER, JR., and DAVID F. FARR **1167**

Fawole, M.O.
Glutamate dehydrogenase from *Vicia faba*
M.O. FAWOLE **1850**

Fensom, D.S.

The effect of pH and ABA on the hydraulic conductivity of *Nitella* membranes
G.N.ST.G. ORD, I.F. CAMERON, and D.S. FENSOM **1**

Note on lack of effect of ethylene on water permeability, electroosmotic efficiency, or transcellular water flow of the plasma membranes in *Nitella*
D.S. FENSOM and S.M. ROSS **615**

Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY **1787**

Ferrell, W.K.
Morphological acclimation to light intensity in Douglas-fir seedlings
ALLAN P. DREW and WILLIAM K. FERRELL **2033**

Ferrier, J.M.
A new method for measurement of hydraulic conductivity and elastic coefficients in higher plant cells using an external force
J.M. Ferrier and J. Dainty **858**

Fiasson, J.-L.
Identification chimique de styryl-pyrones chez quatre hyménochétacées (Champignons, Aphyllophorales)
Jean-Louis Fiasson et Jacques Bernillon **2984**

Fieldes, M.A.
Preliminary characterization of peroxidase isozymes isolated from two flax genotrophs
M.A. Fieldes, C.L. Deal, and H. Tyson **1465**

Fischer, R.
Mesophyll cell walls in hemlock, *Tsuga canadensis*
R. Fischer and N.G. Dengler **1510**

Fisher, J.E.
Latent floret primordia in the glume axils of inflorescences in the subtribe Triticinae
John E. Fisher **133**

Fletcher, R.A.
Cytokinin levels in healthy and *Verticillium*-infected tomato plants
T.W. Patrick, R. Hall, and R.A. Fletcher **377**

Fleurat-Lessard, P.
Le mouvement géotropique des feuilles chez la Sensitive (*Mimosa pudica*) soumise à l'influence d'un agent anesthésique
Jacky Gaillochet et Pierrette Fleurat-Lessard **70**

Flinn, M.A.
Depth of underground plant organs and theoretical survival during fire
Marguerite A. Flinn and Ross W. Wein **2550**

Floyd, G.L.
Light and electron microscopic investigations in the Dictyonemataceae (Basidiolichens)
Robert D. Slocum and Gary L. Floyd **2565**

Fogel, R.
Effect of habitat and substrate quality on Douglas fir litter decomposition in western Oregon
Robert Fogel and Kermit Cromack, Jr. **1632**

Fontana, A.
Anthopsis deltoidea, a new genus and species of Dematiaceae from soil
Valeria Filipello Marchisio, Anna Fontana, and Anna Maria Luppi Mosca **115**

Foo, S.S.K.
Regulation of isocitrate metabolism in *Chlamydomonas segnis*
Samuel S.K. Foo and Samir S. Badour **2178**

Fowke, L.C.
Preparation, culture, and regeneration of protoplasts from filamentous green algae
Harvey J. Marchant and Larry C. Fowke **3080**

Fox, C.H.
The cultivation of *Chondrus crispus*. Factors affecting growth under greenhouse conditions
A.C. Neish, P.F. Shacklock, C.H. Fox, and F.J. Simpson **2263**

Foy, M.G.
Standing stock, community structure, species composition, distribution, and primary production of natural populations of phytoplankton in the southern Beaufort Sea
Stephen I.C. Hsiao, Malcolm G. Foy, and Douglas W. Kittle **685**

Frick, H.
Characterization of augmented potassium uptake in the seedling primary root of inbred maize (*Zea mays*)
Hugh Frick, Ralph L. Nicholson, and Loyal F. Bauman **1128**

Fry, S.C.
An investigation of photosynthetic sucrose production in bean leaves
S.C. Fry and R.G.S. Bidwell **1457**

Funk, A.
Pezizella chapmanii n.sp., a discomycete associated with bark beetle galleries in western conifers
H.S. Whitney and A. Funk **888**

Gaillochet, J.
Le mouvement géotropique des feuilles chez la Sensitive (*Mimosa pudica*) soumise à l'influence d'un agent anesthésique
Jacky Gaillochet et Pierrette Fleurat-Lessard **70**

Galatis, B.
On the fine structure of differentiating mucilage papillae of *Marchantia*
B. Galatis and P. Apostolakos **772**

Ganders, F.R.
A leaf spot polymorphism in *Collinsia grandiflora* (Scrophulariaceae)
A.J.F. Griffiths, Gerda Krause, and Fred R. Ganders **654**

Outcrossing rates in natural populations of *Plectritis brachystemon* (Valerianaceae)
Fred R. Ganders, Ken Carey, and A.J.F. Griffiths **2070**

Garland, S.
Polychlorinated biphenyls and their effects on photosynthesis and respiration
J. Sinclair, S. Garland, T. Arnason, P. Hope, and M. Granville **2679**

Garraway, M.O.
Sporulation and peroxidase in *Bipolaris maydis*: effects of xylose and thiamine
M.O. GARRAWAY and R.C. EVANS **1996**

Gauthier, B.
Un type complémentaire de profil écologique: le profil écologique «indicé»
B. GAUTHIER, M. GODRON, P. HIERNAUX et J. LEPART **2859**

Gervais, C.
Cytological investigation of the *Achillea millefolium* complex (*Compositae*) in Quebec
CAMILLE GERVAIS **796**

Gholz, H.L.
Evaluating stem conducting tissue as an estimator of leaf area in four woody angiosperms
R.H. WARING, H.L. GHOLZ, C.C. GRIER, and M.L. PLUMMER **1474**

Gibby, M.
The origin of *Dryopteris campyloptera*
MARY GIBBY **1419**

Gillespie, M.C.
Ultrastructural investigation of various membrane configurations in *Nicotiana tabacum*
M.C. GILLESPIE and J.L. HAMILTON **2338**

Gillespie, T.J.
The influence of submersed aquatic plants on temperature gradients in shallow water bodies
H.M. DALE and T.J. GILLESPIE **2216**

Glooschenko, V.
The effects of chlordane on the green algae *Scenedesmus quadricauda* and *Chlamydomonas* sp.
VALANNE GLOOSCHENKO and JOHN N.A. LOTT **2866**

Godavari, H.R.
Stabilizing effect of benzimidazole on 6-phosphofructokinase activity in wheat leaves
BOLANLE A.A. WILLIAMS, H.R. GODAVARI, and E.R. WAYGOOD **219**

Godfrey, J.D.
Notes on Hepaticae collected by John Macoun in southwestern British Columbia
JUDITH DEAN GODFREY **2600**

Godron, M.
Un type complémentaire de profil écologique: le profil écologique «indicé»
B. GAUTHIER, M. GODRON, P. HIERNAUX et J. LEPART **2859**

Goos, R.D.
An addition to the bird's nest fungi of the Hawaiian Islands
R.D. GOOS **2761**

Gordon-Mills, E.M.
Structural studies of *Chondrus crispus*: the effect of extraction of carrageenan
E.L. MCCANDLESS, W.T. OKADA, J.N.A. LOTT, C.M. VOLLMER, and E.M. GORDON-MILLS **2053**

Gornall, R.J.
Notes on the size and exine ornamentation of *Avena* pollen grains
R.J. GORNALL **2622**

Grandtner, M.M.
Contribution à l'étude écologique des dunes mobiles. I. Les éléments phytosociologiques
GISÈLE LAMOUREUX et MIROSLAV M. GRANDTNER **158**

Granville, M.
Polychlorinated biphenyls and their effects on photosynthesis and respiration
J. SINCLAIR, S. GARLAND, T. ARNASON, P. HOPE, and M. GRANVILLE **2679**

Gregory, R.A.
Cambial activity and ray cell abundance in *Acer saccharum*
R.A. GREGORY **2559**

Greyson, R.I.
Changes during development in the compartmentalization patterns of extractable gibberellin-like substances in 'single' and 'double' genotypes of *Nigella damascena*
K. RAMAN and R.I. GREYSON **2115**

Grier, C.C.
Evaluating stem conducting tissue as an estimator of leaf area in four woody angiosperms
R.H. WARING, H.L. GHOLZ, C.C. GRIER, and M.L. PLUMMER **1474**

Griffin, K.O.
Paleoecological aspects of the Red Lake Peatland, northern Minnesota
KERSTIN O. GRIFFIN **172**

Griffiths, A.J.F.
A leaf spot polymorphism in *Collinsia grandiflora* (Scrophulariaceae)
A.J.F. GRIFFITHS, GERDA KRAUSE, and FRED R. GANDERS **654**

Outcrossing rates in natural populations of *Plectritis brachystemon* (Valerianaceae)
FRED R. GANDERS, KEN CAREY, and A.J.F. GRIFFITHS **2070**

Griffiths, D.A.
The fine structure of conidiogenesis in *Alysidium resinae* (= *Torula ramosa*)
D.H. ELLIS and D.A. GRIFFITHS **676**

Gruen, H.E.
The effects of substrate, temperature, and photoperiod on conidiation of *Pyrenophora tritici-repentis*
HAROLD W. PLATT, R.A.A. MORRALL, and H.E. GRUEN 254

Grund, D.
Studies on *Gracilaria*. 5. In vitro life history of *Gracilaria* sp. from the Maritime Provinces
N. BIRD, J. MCLACHLAN, and D. GRUND 1282

Gupta, R.K.
A study of photosynthesis and leakage of solutes in relation to the desiccation effects in bryophytes
R.K. GUPTA 1186

An artefact in studies of the responses of respiration of bryophytes to desiccation
R.K. GUPTA 1195

Haber, E.
Circaea × *intermedia* in eastern North America with particular reference to Ontario
ERICH HABER 2919

Hadland-Hartmann, V.E.
Zoospore ultrastructure of *Olpidium cucurbitacearum* (Chytridiales)
D.J.S. BARR and V.E. HADLAND-HARTMANN 3063

Hall, R.
Cytokinin levels in healthy and *Verticillium*-infected tomato plants
T.W. PATRICK, R. HALL, and R.A. FLETCHER 377

Hamilton, J.L.
Ultrastructural investigation of various membrane configurations in *Nicotiana tabacum*
M.C. GILLESPIE and J.L. HAMILTON 2338

Hammill, T.M.
Transmission electron microscopy of annellides and conidiogenesis in the synnematal hyphomycete *Trichurus spiralis*
TERRENCE M. HAMMILL 233

Hartmann, V.E.
Zoospore ultrastructure of *Olpidium brassicae* and *Rhizophlyctis rosea*
D.J.S. BARR and V.E. HARTMANN 1221

Harvey, I.C.
Studies of the infection of lupin leaves by *Pleiochaeta setosa*
IAN C. HARVEY 1261

Haskins, E.F.
The occurrence of nuclear fusion in the amoebal phase of the slime mold *Echinostelium minutum*: a reinterpretation of the significance of this phenomenon
E.F. HASKINS 3020

Hatch, A.B.
High soil fertility decreases sucrose content and susceptibility of loblolly pine roots to ectomycorrhizal infection by *Pisolithus tinctorius*
DONALD H. MARX, A.B. HATCH, and J.F. MENDICINO 1569

Hawksworth, D.L.
The generic names *Paranectria* and *Paranectriella* and their synonyms
D.L. HAWKSWORTH and K.A. PIROZYNSKI 2555

Hayashi, Y.
Effect of a host-specific toxin (AM-toxin I) produced by *Alternaria mali*, an apple pathogen, on the ultrastructure of plasma membrane of cells in apple and Japanese pear leaves
PYOYUN PARK, MITSUYA TSUDA, YOSHIHARU HAYASHI, and TAMIO UENO 2383

Hayden, D.B.
A second distinct chlorophyll *a* - protein complex in maize mesophyll chloroplasts
D.B. HAYDEN and W.G. HOPKINS 2525

Healey, F.P.
Ammonium and urea uptake by some freshwater algae
F.P. HEALEY 61

Heath, I.B.
Morphology and ontogeny of microbodies in the oomycete fungus *Sapromyces elongatus*
I. BRENT HEATH 556

An ultrastructural analysis of the changes in organelle arrangement and structure between the various spore types of *Saprolegnia*
SHIRLEY A. HOLLOWAY and I. BRENT HEATH 1328

Hébant-Mauri, R.
Segmentation apicale et initiation foliaire chez *Ceratopteris thalictroides* (Fougère leptosporangiée)
ROSE HÉBANT-MAURI 1820

Heilman, J.L.
Estimating dry-matter accumulation in soybean
J.L. HEILMAN, E.T. KANEMASU, and G.M. PAULSEN 2196

Hellebust, J.A.
Effect of naphthalene and aqueous crude oil extracts on the green flagellate *Chlamydomonas angulosa*. III. Changes in cellular composition
C. SOTO, J.A. HELLEBUST, and T.C. HUTCHINSON 2765

Hemmes, D.E.
Electron microscopy of early gametangial interaction in *Phytophthora megasperma* var. *sojae*
DON E. HEMMES and OLAF K. RIBEIRO 436

Hendrix, J.W.
Lack of relationship between ability to kill plants and ability to inhibit plant growth among *Phytophthora* species
SOMCHAI KANLONG and JAMES W. HENDRIX 17

Soil-borne propagule populations of isolates of *Phytophthora cryptogea* and *P. parasitica* in relation to inhibition of growth of tobacco plants
LESZEK B. ORLIKOWSKI and JAMES W. HENDRIX 23

Nonparasitic stunting of tobacco plants by *Phytophthora cryptogea*
ALEX CSINOS and JAMES W. HENDRIX 26

Toxin produced by *Phytophthora cryptogea* active on excised tobacco leaves
ALEX CSINOS and JAMES W. HENDRIX 1156

Henis, Y.
Physiological and ultrastructural changes occurring during germination of sclerotia of *Sclerotium rolfsii*
I. CHET, D. TIMAR, and Y. HENIS 1137

Henry, R.M.
Comparative reproductive ability of bigtooth and trembling aspen and their hybrid
ROBERT M. HENRY and BURTON V. BARNES 3093

Hess, W.M.
Electron microprobe analyses of salt distribution in the halophyte *Salicornia pacifica* var. *utahensis*
D.J. WEBER, H.P. RASMUSSEN, and W.M. HESS 1516

Hesseltine, C.W.
Zygosporogenesis in *Gilbertella persicaria*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 662

Azygosporogenesis in *Mucor azygosporus*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2712

Morphogenesis of azygospores induced in *Gilbertella persicaria* (+) by imperfect hybridization with *Rhizopus stolonifer* (-)
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2721

Hickey, E.L.
A fine-structural study of the pea downy mildew fungus *Peronospora pisi* in its host *Pisum sativum*
EDWARD L. HICKEY and MICHAEL D. COFFEY 2845

Hicklenton, P.R.
Physiological aspects of the ecology of *Dicranum fuscescens* in the subarctic. II. Seasonal patterns of organic nutrient content
PETER R. HICKLENTON and WALTER C. OECHEL 2168

Hickok, L.G.
Cytological relationships between three diploid species of the fern genus *Ceratopteris*
LESLIE G. HICKOK 1660

An apomictic mutant for sticky chromosomes in the fern *Ceratopteris*
LESLIE G. HICKOK 2186

Hicks, G.S.
A developmental study of the stamens in a male-sterile tobacco hybrid
G.S. HICKS, J. BELL, and S.A. SAND 2234

Hiernaux, P.
Un type complémentaire de profil écologique: le profil écologique «indicé»
B. GAUTHIER, M. GODRON, P. HIERNAUX et J. LEPART 2859

Hill, B.
An investigation into the influence of IAA and malate on in vivo and in vitro rates of dark carbon dioxide fixation in coleoptile tissue
I.J. DYMOCK, B. HILL, and A.W. BOWN 1641

Hill, R.D.
Cyanide-insensitive respiration in wheat: cultivar differences and effects of temperature, carbon dioxide, and oxygen
T.N. MCCAIG and R.D. HILL 549

Hill, T.W.
Ascocarp ultrastructure of *Herpomyces* sp. (Laboulbeniales) and its phylogenetic implications
TERRY W. HILL 2015

Hoch, H.C.
Mycoparasitic relationships. III. Parasitism of *Physalospora obtusa* by *Calcarisporium parasiticum*
H.C. HOCH 198

Hodges, C.F.
Influence of irrigation on survival of *Poa pratensis* infected by *Ustilago striiformis* and *Urocystis agropyri*
CLINTON F. HODGES 216

Hoffman, L.L.
Composition of epicuticular waxes of some grasses
A.P. TULLOCH and L.L. HOFFMAN 853

Hofstra, G.
Assimilate distribution patterns and carbohydrate concentration changes in organs of *Solidago canadensis* during an annual developmental cycle
IAN K. BRADBURY and G. HOFSTRA 1121

Hogan, G.D.
The effects of soil factors on the distribution of *Agrostis gigantea* on a mine waste site
GARY D. HOGAN, GERARD M. COURTIN, and WILFRIED E. RAUSER 1038

Copper tolerance in clones of *Agrostis gigantea* from a mine waste site
GARY D. HOGAN, GERARD M. COURTIN, and WILFRIED E. RAUSER 1043

Hollenstein, G.O.
Architecture of the *Agaricus bisporus* spore wall
D. RAST and G.O. HOLLENSTEIN 2251

Holloway, S.A.
An ultrastructural analysis of the changes in organelle arrangement and structure between the various spore types of *Saprolegnia*
SHIRLEY A. HOLLOWAY and I. BRENT HEATH 1328

Holmen, K.
Bryophytes of Nahanni National Park and vicinity, Northwest Territories, Canada
WILLIAM C. STEERE, GEORGE W. SCOTTER, and KJELD HOLMEN 1741

Hooper, G.R.
Zygosporogenesis in *Gilbertella persicaria*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 662

Ultrastructural development of merosporangia in the mycoparasite *Syncephalis sphaerica* (Mucorales)
K.L. BAKER, G.R. HOOPER, and E.S. BENEKE 2207

Azygosporogenesis in *Mucor azygosporus*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2712

Morphogenesis of azygospores induced in *Gilbertella persicaria* (+) by imperfect hybridization with *Rhizopus stolonifer* (-)
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2721

Hooper, R.G.
The reproduction and phenology of *Antithamnion cruciatum* (Rhodophyta: Ceramiaceae) in insular Newfoundland
ALAN WHITTICK and ROBERT G. HOOPER 520

Hope, P.
Polychlorinated biphenyls and their effects on photosynthesis and respiration
J. SINCLAIR, S. GARLAND, T. ARNASON, P. HOPE, and M. GRANVILLE 2679

Hopkins, W.G.
A second distinct chlorophyll *a* - protein complex in maize mesophyll chloroplasts
D.B. HAYDEN and W.G. HOPKINS 2525

Horton, D.G.
Anastrophyllum assimile and *Marsupella revoluta*, new to the interior of North America
DIANA G. HORTON 2479

Horton, R.F.
Leaf senescence in *Maianthemum canadense*: the effect of cytokinins and gibberellin
ROGER F. HORTON 2272

Howes, N.K.
Lack of reproducibility in bioassays for gene-specific RNA reportedly involved in the resistance response of wheat to stem rust
R. ROHRINGER, N.K. HOWES, W.K. KIM, and D.J. SAMBORSKI 851

Effect of blasticidin S, ethionine, and polyoxin D on stem rust development and host-cell necrosis in wheat near-isogenic for gene *Sr6*
W.K. KIM, R. ROHRINGER, D.J. SAMBORSKI, and N.K. HOWES 568

Histological studies on host-cell necrosis conditioned by the *Sr6* gene for resistance in wheat to stem rust
D.J. SAMBORSKI, W.K. KIM, R. ROHRINGER, N.K. HOWES, and R.J. BAKER 1445

Hsiao, S.I.C.
Standing stock, community structure, species composition, distribution, and primary production of natural populations of phytoplankton in the southern Beaufort Sea
STEPHEN I.C. HSIAO, MALCOLM G. FOY, and DOUGLAS W. KITTLE 685

Huang, H.C.
Importance of *Coniothyrium minitans* in survival of sclerotia of *Sclerotinia sclerotiorum* in wilted sunflower
H.C. HUANG 289

Hubac, C.
Influence de la sécheresse sur la morphologie du système racinaire du *Carex setifolia*
S. DA, C. HUBAC et N. VARTANIAN 1236

Hui, V.
Growth of plant cell suspension cultures with ammonium as the sole source of nitrogen
S.M. MARTIN, DYSON ROSE, and VIRGINIA HUI 2838

Hulton, R.L.
Ascocarp development in *Lophodermium nitens*
J.F. MORGAN-JONES and R.L. HULTON 2605

Hung, C.-Y.
Ultrastructural studies of ascospore liberation in *Pyronema domesticum*
CHING-YUAN HUNG 2544

Hunt, L.A.
Effects of temperature on the photosynthesis–irradiance response curves of newly matured leaves of alfalfa
S.B. KU and L.A. HUNT 872

Effect of leaf age on photosynthesis and transpiration of cassava (*Manihot esculenta*)
M. ASLAM, S.B. LOWE, and L.A. HUNT 2288

Hunt, R.S.
Chemosystematic studies in the genus *Abies*. III. Leaf and twig oil analysis of amabilis fir
E. VON RUDLOFF and R.S. HUNT 3087

Huss-Danell, K.
Nitrogen fixation by *Stereocaulon paschale* under field conditions
KERSTIN HUSS-DANELL 585

Hutchinson, T.C.
Effect of naphthalene and aqueous crude oil extracts on the green flagellate *Chlamydomonas angulosa*. III. Changes in cellular composition
C. Soto, J.A. Hellebust, and T.C. Hutchinson **2765**

Jagels, R.
Morphology and development of aerial roots of *Selaginella martensii* grown in moist containers
Terry R. Webster and Richard Jagels **2149**

Jain, K.
Factors influencing ascospore germination in three species of *Sporormiella*
Shirin Asina, Kanti Jain, and R.F. Cain **1908**

Factors influencing growth and ascocarp production in three species of *Sporormiella*
Shirin Asina, Kanti Jain, and R.F. Cain **1915**

Jeng, R.S.
New records and new species of *Arnium*
R.S. Jeng and J.C. Krug **83**

New species and new records of *Delitschia* from Venezuela
R.S. Jeng, E.R. Luck-Allen, and R.F. Cain **383**

New records and new species of coprophilous Pezizales from Argentina and Venezuela
R.S. Jeng and J.C. Krug **2987**

Johnson, E.A.
A multivariate analysis of the niches of plant populations of raised bogs. I. Niche dimensions
E.A. Johnson **1201**

A multivariate analysis of the niches of plant populations in raised bogs. II. Niche width and overlap
E.A. Johnson **1211**

Jones, J.P.
The ultrastructure of conidium ontogeny in *Pestalotiopsis neglecta*
John P. Jones **766**

Jones, R.W.
Conditions affecting in vivo nitrate reductase activity in chlorophyllous tissues
Richard Wyn Jones and Robert W. Sheard **896**

Jorgensen, J.R.
Respiration of field-grown loblolly pine roots as influenced by temperature and root type
E.L. Barnard and J.R. Jorgensen **740**

Kanemasu, E.T.
Estimating dry-matter accumulation in soybean
J.L. Heilman, E.T. Kanemasu, and G.M. Paulsen **2196**

Kanlong, S.
Lack of relationship between ability to kill plants and ability to inhibit plant growth among *Phytophthora* species
Somchai Kanlong and James W. Hendrix **17**

Karas, I.
A contribution to the taxonomy of *Antennaria alpina* var. *media*, *A. microphylla*, and *A. umbrinella* in western North America
George W. Douglas, Keith E. Denford, and Ilana Karas **925**

Kaufmann, M.R.
Soil temperature and drying cycle effects on water relations of *Pinus radiata*
Merrill R. Kaufmann **2413**

Keller, H.W.
Peridial composition of white fructifications in the Trichiales (*Perichaena* and *Dianema*)
Jean D. Schoknecht and Harold W. Keller **1807**

Keller, W.A.
Embryogenesis and plant regeneration in *Brassica napus* anther cultures
W.A. Keller and K.C. Armstrong **1383**

Isolation of protoplasts from unhardened and hardened tissues of winter rye and wheat
A. Ian de la Roche, W.A. Keller, J. Singh, and D. Siminovitch **1181**

Kemp, P.R.
Temperature relations of gas exchange in altitudinal populations of *Taraxacum officinale*
Paul R. Kemp, George J. Williams III, and David S. May **2496**

Kendrick, B.
Colonization of rosin-coated slides by aquatic hyphomycetes
Felix Barlocher, Bryce Kendrick, and John Michaelides **1163**

Kendrick, W.B.
A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. Schenck, W.B. Kendrick, and D. Pramer **977**

Erratum: A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. Schenck, W.B. Kendrick, and D. Pramer **1859**

Kershaw, K.A.
Studies on lichen-dominated systems. XX. An examination of some aspects of the northern boreal lichen woodlands in Canada
K.A. Kershaw **393**

Khan, S.R.
Light and electron microscopic observations of sporangium formation in *Albugo candida* (Peronosporales; Oomycetes)
Saeed R. Khan **730**

Kiffer, E.
Ultrastructural study of host–parasite interactions. II. Decay of lettuce caused by *Botrytis cinerea* and phyllosphere bacteria
RENÉ DELON, ETIENNE KIFFER, and FRANÇOIS MANGENOT 2463

Kim, W.K.
Effect of blasticidin S, ethionine, and polyoxin D on stem rust development and host-cell necrosis in wheat near-isogenic for gene *Sr6*
W.K. KIM, R. ROHRINGER, D.J. SAMBORSKI, and N.K. HOWES 568

Lack of reproducibility in bioassays for gene-specific RNA reportedly involved in the resistance response of wheat to stem rust
R. ROHRINGER, N.K. HOWES, W.K. KIM, and D.J. SAMBORSKI 851

Histological studies on host-cell necrosis conditioned by the *Sr6* gene for resistance in wheat to stem rust
D.J. SAMBORSKI, W.K. KIM, R. ROHRINGER, N.K. HOWES, and R.J. BAKER 1445

Kimbrough, J.W.
Cytology and ultrastructure of *Thanatephorus cucumeris* and related taxa of the *Rhizoctonia* complex
C.C. TU, JAMES W. KIMBROUGH, and H.C. ALDRICH 2419

King, D.S.
Systematics of *Conidiobolus* (Entomophthorales) using numerical taxonomy. III. Descriptions of recognized species
DOUGLAS S. KING 718

Kinloch, B.B., Jr.
White pine blister rust: hypersensitive resistance in sugar pine
BOHUN B. KINLOCH, JR. and JULIA L. LITTLEFIELD 1148

Kittle, D.W.
Standing stock, community structure, species composition, distribution, and primary production of natural populations of phytoplankton in the southern Beaufort Sea
STEPHEN I.C. HSIAO, MALCOLM G. FOY, and DOUGLAS W. KITTLE 685

Klekowski, E.J., Jr.
Genetic damage to a fern population growing in a polluted environment: segregation and description of gametophyte mutants
EDWARD J. KLEKOWSKI, JR. and EDWARD L. DAVIS 542

Klinck, H.R.
Influence of temperature and photoperiod on growth and yield components in oats (*Avena sativa*)
H.R. KLINCK and S.L. SIM 96

Kloet, S.P.V.
The taxonomic status of *Vaccinium boreale*
S.P. VANDER KLOET 281

Potential and actual gene exchange among three sympatric species of *Vaccinium* § *Cyanococcus* in Highlands County, Florida
S.P. VANDER KLOET 2668

Koch, W.J.
Morphological variations in a new species of *Entophlyctis*. I. The species concept
MARTHA J. POWELL and WILLIAM J. KOCH 1668

Morphological variations in a new species of *Entophlyctis*. II. Influence of growth conditions on morphology
MARTHA J. POWELL and WILLIAM J. KOCH 1686

Kohli, B.L.
A study of the flavonoids of the *Potentilla pensylvanica* complex in North America
B.L. KOHLI and K.E. DENFORD 476

Kølmark, H.G.
Modifying the growth habit of the filamentous fungus *Fusarium solani* to facilitate replica plating procedures
HANS D. VANETTEN and H. GUNNAR KØLMARK 848

Kozlowski, T.T.
Changes in structure and function of epigeous cotyledons of woody angiosperms during early seedling growth
P.E. MARSHALL and T.T. KOZLOWSKI 208

Krause, G.
A leaf spot polymorphism in *Collinsia grandiflora* (Scrophulariaceae)
A.J.F. GRIFFITHS, GERDA KRAUSE, and FRED R. GANDERS 654

Krawczyszyn, J.
The transition from nonstoried to storied cambium in *Fraxinus excelsior*. I. The occurrence of radial anticlinal divisions
J. KRAWCZYSZYN 3034

Krug, J.C.
New records and new species of *Arnium*
R.S. JENG and J.C. KRUG 83

New records and new species of coprophilous Pezizales from Argentina and Venezuela
R.S. JENG and J.C. KRUG 2987

Ku, S.B.
Effects of temperature on the photosynthesis–irradiance response curves of newly matured leaves of alfalfa
S.B. KU and L.A. HUNT 872

Kuijt, J.
Anatomy and ultrastructure of the haustorium in *Comandra* (Santalaceae)
RONALD TOTH and JOB KUIJT 455

Cytochemical localization of acid phosphatase in endophyte cells of the semiparasitic angiosperm *Comandra umbellata* (Santalaceae)
RONALD TOTH and JOB KUIJT 470

Cytochemical studies on the gland in the primary haustorium of *Phthirusa* (Loranthaceae)
RONALD TOTH and JOB KUIJT 2011

Kumar, U.
Morphogenetic regulation of seed germination in *Orobanche aegyptiaca* Pers.
USHA KUMAR 2613

Kupila-Ahvenniemi, S.
Winter and spring changes in the microsporogenous cells of the Scotch pine as revealed by Feulgen photometry and Auramin fluorometry
SIRKKA KUPILA-AHVENNIEMI 1434

Lamoureux, G.
Contribution à l'étude écologique des dunes mobiles. I. Les éléments phytosociologiques
GISÈLE LAMOUREUX et
MIROSLAV M. GRANDTNER 158

Lange, L.
Some bog chytrids
F.K. SPARROW and LENE LANGE 1879

Langer, H.
Bud development in *Picea glauca*. I. Annual growth cycle of vegetative buds and shoot elongation as they relate to date and temperature sums
JOHN N. OWENS, MARJE MOLDER, and
HILARY LANGER 2728

Larbalestier, G.
A membrane-bound plastid inclusion in the epidermis of leaves of *Taraxacum officinale*
E.S. MARTIN and G. LARBALESTIER 222

Larter, E.N.
Effects of ε-amino-*n*-caproic acid and L-lysine on the development of hybrid embryos of triticale (×*Triticosecale*)
TOMOAKI TAIRA and E.N. LARTER 2330

The effects of variation in ambient temperature alone and in combination with ε-amino-*n*-caproic acid on development of embryos from wheat–rye crosses (*T. turgidum* var. *durum* cv. Jori × *S. cereale*)
TOMOAKI TAIRA and E.N. LARTER 2335

Lawrey, J.D.
The relative decomposition potential of habitats variously affected by surface coal mining
JAMES D. LAWREY 1544

Lecocq, M.
Le gynécée du *Begonia tuberhybride* et ses variations
MICHÈLE LECOCQ 525

Ledingham, K.W.O.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and
J. MOORBY 1787

Lee, D.G.
A new dasycladacean alga associated with the 'Arctic Ordovician' fauna on Cornwallis Island
D.G. LEE and W.G.E. CALDWELL 52

Lee, T.T.
Promotion of plant growth and inhibition of enzymic degradation of indole-3-acetic acid by metabolites of carbofuran, a carbamate insecticide
T.T. LEE 574

Lenoir, J.A.
Metabolism and translocation of 3-amino-1,2,4-triazole in *Pinus pinea*
G. LULHAM, S.S. ASHTAKALA, and J.A. LENOIR 2296

Lepart, J.
Un type complémentaire de profil écologique: le profil écologique «indicé»
B. GAUTHIER, M. GODRON, P. HIERNAUX et
J. LEPART 2859

Lersten, N.R.
Preliminary report of outer wall helices in trichomes of certain dicots
NELS R. LERSTEN and JOHN D. CURTIS 128

Lichtwardt, R.W.
Zygospores of the Harpellales: an ultrastructural study
S.T. MOSS and R.W. LICHTWARDT 3099

Littlefield, J.L.
White pine blister rust: hypersensitive resistance in sugar pine
BOHUN B. KINLOCH, JR. and JULIA L. LITTLEFIELD 1148

Lloyd, N.D.H.
Photosynthesis and photorespiration in submerged aquatic vascular plants
N.D.H. LLOYD, D.T. CANVIN, and J.M. BRISTOW 3001

Photosynthesis and photorespiration in sunflower selections
N.D.H. LLOYD and D.T. CANVIN 3006

Lott, J.N.A.
The effects of chlordane on the green algae *Scenedesmus quadricauda* and *Chlamydomonas* sp.
VALANNE GLOOSCHENKO and JOHN N.A. LOTT 2866

Structural studies of *Chondrus crispus*: the effect of extraction of carrageenan
E.L. MCCANDLESS, W.T. OKADA, J.N.A. LOTT, C.M. VOLLMER, and E.M. GORDON-MILLS 2053

Love, R.J.R.
The primary productivity of submerged macrophytes in West Blue Lake, Manitoba
R.J.R. LOVE and G.G.C. ROBINSON 118

Lowe, S.B.
Effect of leaf age on photosynthesis and transpiration of cassava (*Manihot esculenta*)
M. ASLAM, S.B. LOWE, and L.A. HUNT 2288

Lu, B.C.
Ultrastructure of wilt syndrome caused by *Verticillium dahliae*. III. Chronological symptom development in sunflower leaves
JANE ROBB, LLOYD BUSCH, JEAN D. BRISSON, and B.C. LU **139**

Luck-Allen, E.R.
New species and new records of *Delitschia* from Venezuela
R.S. JENG, E.R. LUCK-ALLEN, and R.F. CAIN **383**

Lulham, G.
Metabolism and translocation of 3-amino-1,2,4-triazole in *Pinus pinea*
G. LULHAM, S.S. ASHTAKALA, and J.A. LENOIR **2296**

Luttrell, E.S.
Classification of *Myriogenospora* in the Clavicipitaceae
E.S. LUTTRELL and CHARLES W. BACON **2090**

Macdonald, A.D.
Myricaceae: floral hypothesis for *Gale* and *Comptonia*
ALASTAIR D. MACDONALD **2636**

Macdowall, F.D.H.
Growth kinetics of Marquis wheat. VII. Dependence on photoperiod and light compensation point in vegetative phase
F.D.H. MACDOWALL **639**

MacLean, D.A.
Changes in understory vegetation with increasing stand age in New Brunswick forests: species composition, cover, biomass, and nutrients
DAVID A. MACLEAN and ROSS W. WEIN **2818**

Mahlberg, P.G.
Young plastids in shoot apical cells of a genetic albino strain of Nicotiana (Solanaceae)
ANNE A. SUSALLA and PAUL G. MAHLBERG **1429**

Maier, U.
The structure of the epiphyllous appendages of *Begonia hispida* var. *cucullifera*
UTA MAIER and ROLF SATTLER **264**

Development of the epiphyllous appendages of *Begonia hispida* var. *cucullifera*: implications for comparative morphology
ROLF SATTLER and UTA MAIER **411**

Maillard, F.
Métabolisme de l'acide indolyl-3-acétique dans les cultures de cellules d'*Acer pseudoplatanus* cultivés in vitro
F. MAILLARD et J.-P. ZRYD **2530**

Malloch, D.
Pulveria, a new genus of Xylariaceae (Ascomycetes)
DAVID MALLOCH and CLARK T. ROGERSON **1505**

The Endomycetaceae: new concepts, new taxa
SCOTT A. REDHEAD and DAVID W. MALLOCH **1701**

Malmgren, M.M.
Notes on *Rosellinia buxi* and conidal *Xylaria*
JACK D. ROGERS and MARLENE M. MALMGREN **1051**

Mangenot, F.
Ultrastructural study of host–parasite interactions. II. Decay of lettuce caused by *Botrytis cinerea* and phyllosphere bacteria
RENÉ DELON, ETIENNE KIFFER, and FRANÇOIS MANGENOT **2463**

Marchant, H.J.
Preparation, culture, and regeneration of protoplasts from filamentous green algae
HARVEY J. MARCHANT and LARRY C. FOWKE **3080**

Marchisio, V.F.
Anthopsis deltoidea, a new genus and species of Dematiaceae from soil
VALERIA FILIPELLO MARCHISIO, ANNA FONTANA, and ANNA MARIA LUPPI MOSCA **115**

Marsh, A.H.
Bryophytes from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada
CHARLES D. BIRD, GEORGE W. SCOTTER, WILLIAM C. STEERE, and ALFRED H. MARSH **2879**

Marshall, P.E.
Changes in structure and function of epigeous cotyledons of woody angiosperms during early seedling growth
P.E. MARSHALL and T.T. KOZLOWSKI **208**

Martin, E.S.
A membrane-bound plastid inclusion in the epidermis of leaves of *Taraxacum officinale*
E.S. MARTIN and G. LARBALESTIER **222**

The morphogenesis of substomatal structures in *Polypodium vulgare*
R.A. STEVENS and E.S. MARTIN **2873**

Martin, S.M.
Growth of plant cell suspension cultures with ammonium as the sole source of nitrogen
S.M. MARTIN, DYSON ROSE, and VIRGINIA HUI **2838**

Marx, D.H.
High soil fertility decreases sucrose content and susceptibility of loblolly pine roots to ectomycorrhizal infection by *Pisolithus tinctorius*
DONALD H. MARX, A.B. HATCH, and J.F. MENDICINO **1569**

Masago, H.
Effect of cyclic AMP on catabolite-repressed zoosporangial formation in *Phytophthora capsici*
M. YOSHIKAWA and H. MASAGO **840**

Synchronized zoosporangial formation in liquid culture of *Phytophthora capsici*
M. YOSHIKAWA, A. NISHIDA, and H. MASAGO **844**

May, D.S.
Temperature relations of gas exchange in altitudinal populations of *Taraxacum officinale*
PAUL R. KEMP, GEORGE J. WILLIAMS III, and DAVID S. MAY **2496**

Mayo, J.M.
Low K^+ in *Paphiopedilum leeanum* leaf epidermis: implications for stomatal functioning
SHERMAN D. NELSON and JAMES M. MAYO **489**

Maze, J.
Embryology of *Festuca microstachys* (Gramineae)
JACK MAZE and LESLEY R. BOHM **1768**

McCaig, T.N.
Cyanide-insensitive respiration in wheat: cultivar differences and effects of temperature, carbon dioxide, and oxygen
T.N. MCCAIG and R.D. HILL **549**

McCandless, E.L.
Structural studies of *Chondrus crispus*: the effect of extraction of carrageenan
E.L. MCCANDLESS, W.T. OKADA, J.N.A. LOTT, C.M. VOLLMER, and E.M. GORDON-MILLS **2053**

McGrath, M.S.
Cryopreservation of flagellar mutants of *Chlamydomonas reinhardtii*
MARIAN S. MCGRATH and PIERRE-MARC DAGGETT **1794**

McIntyre, G.I.
Environmental control of lateral bud growth in the sunflower (*Helianthus annuus*)
GORDON I. MCINTYRE **2673**

Apical dominance in the rhizome of *Agrapyron repens*. The relation of amino acid composition to bud activity
S.N. NIGAM and GORDON I. MCINTYRE **2001**

McKeen, W.E.
Fusarium in barley and corn roots
W.E. MCKEEN **12**

Growth of *Pythium graminicola* in barley roots
W.E. MCKEEN **44**

McLachlan, J.
Studies on *Gracilaria*. 5. In vitro life history of *Gracilaria* sp. from the Maritime Provinces
N. BIRD, J. MCLACHLAN, and D. GRUND **1282**

McLaughlin, S.B.
Spatial and temporal patterns in transport and respiratory allocation of [^{14}C]sucrose by white oak (*Quercus alba*)
S.B. MCLAUGHLIN, N.T. EDWARDS, and J.J. BEAUCHAMP **2971**

McNeil, J.N.
Plant–insect relationships between common milkweed *Asclepias syriaca* (Gentianales: Asclepiadaceae) and the European skipper *Thymelicus lineola* (Lepidoptera: Hesperiidae)
JEREMY N. MCNEIL **1553**

McPhee, W.J.
Fungal exudates. I. Characteristics of hyphal exudates in *Fusarium culmorum*
W.J. MCPHEE and N. COLOTELO **358**

Mejnartowicz, L.
Variation and genetics of ribonucleases and phosphodiesterases in conifer seeds
L. MEJNARTOWICZ and F. BERGMANN **711**

Mendicino, J.F.
High soil fertility decreases sucrose content and susceptibility of loblolly pine roots to ectomycorrhizal infection by *Pisolithus tinctorius*
DONALD H. MARX, A.B. HATCH, and J.F. MENDICINO **1569**

Michaelides, J.
Colonization of rosin-coated slides by aquatic hyphomycetes
FELIX BARLOCHER, BRYCE KENDRICK, and JOHN MICHAELIDES **1163**

Miller, O.K., Jr.
Biosystematic studies in the genus *Pholiota*, stirps *Adiposa*
ELLEN R. FARR, ORSON K. MILLER, JR., and DAVID F. FARR **1167**

New evidence of close relationships between *Radiigera* and *Geastrum* (Lycoperdales)
BLAIN ASKEW and ORSON K. MILLER, JR. **2693**

Mims, C.W.
Fine structure of basidiospores of the cedar-apple rust fungus *Gymnosporangium juniperi-virginianae*
CHARLES W. MIMS **1057**

Ultrastructure of teliospore formation in the cedar-apple rust fungus *Gymnosporangium juniperi-virginianae*
CHARLES W. MIMS **2319**

Molder, M.
Vegetative bud development and cone differentiation in *Abies amabilis*
JOHN N. OWENS and MARJE MOLDER **992**

Development of long-shoot terminal buds of western white pine (*Pinus monticola*)
JOHN N. OWENS and MARJE MOLDER **1308**

Seed-cone differentiation and sexual reproduction in western white pine (*Pinus monticola*)
JOHN N. OWENS and MARJE MOLDER **2574**

Sexual reproduction of *Abies amabilis*
JOHN N. OWENS and MARJE MOLDER **2653**

Bud development in *Picea glauca*. I. Annual growth cycle of vegetative buds and shoot elongation as they relate to date and temperature sums
JOHN N. OWENS, MARJE MOLDER, and HILARY LANGER 2728

Bud development in *Picea glauca*. II. Cone differentiation and early development
JOHN N. OWENS and MARJE MOLDER 2746

Molnar, J.M.
A histochemical study of starch, lipids, and certain enzymes in senescing rose stems
J.M. MOLNAR and E.V. PARUPS 617

Moorby, J.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY 1787

Moore, J.M.
Viable seed populations by soil depth and potential site recolonization after disturbance
JANICE M. MOORE and ROSS W. WEIN 2408

Moore, J.W.
Ecology of algae in a subarctic stream
JAMES W. MOORE 1838

Moore, R.T.
Deuteromycetes. II. *Antromycopsis broussonetiae*
ROYALL T. MOORE 1251

Morgan-Jones, J.F.
Ascocarp development in *Lophodermium nitens*
J.F. MORGAN-JONES and R.L. HULTON 2605

Morley, D.
Inhibitors of RNA and protein synthesis and the kinetics of growth of lettuce hypocotyls induced by gibberellic acid
V.K. SAWHNEY, L.M. SRIVASTAVA, and D. MORLEY 1829

Morrall, R.A.A.
A preliminary study of the influence of water potential on sclerotium germination in *Sclerotinia sclerotiorum*
R.A.A. MORRALL 8

The effects of substrate, temperature, and photoperiod on conidiation of *Pyrenophora tritici-repentis*
HAROLD W. PLATT, R.A.A. MORRALL, and H.E. GRUEN 254

Morris, P.F.
Oxygen transport rates through mats of *Lemma minor* and *Wolffia* sp. and oxygen tension within and below the mat
P.F. MORRIS and W.G. BARKER 1926

Mosca, A.M.L.
Anthopsis deltoidea, a new genus and species of Dematiaceae from soil
VALERIA FILIPELLO MARCHISIO, ANNA FONTANA, and ANNA MARIA LUPPI MOSCA 115

Moss, S.T.
Zygospores of the Harpellales: an ultrastructural study
S.T. MOSS and R.W. LICHTWARDT 3099

Mutto, S.
The ultrastructure of *Polymyxa betae* zoospore exit-tube differentiation
V. D'AMBRA and S. MUTTO 831

Neish, A.C.
The cultivation of *Chondrus crispus*. Factors affecting growth under greenhouse conditions
A.C. NEISH, P.F. SHACKLOCK, C.H. FOX, and F.J. SIMPSON 2263

Nelson, S.D.
Low K^+ in *Paphiopedilum leeanum* leaf epidermis: implications for stomatal functioning
SHERMAN D. NELSON and JAMES M. MAYO 489

Neumann, P.
L'induction chez *Ceratocystis* de fructifications de types Graphium et Leptographium par des acides gras insaturés
YOLANDE DALPÉ et PETERJÜRGEN NEUMANN 2159

Newcomb, W.
Development of an ineffective pea root nodule: morphogenesis, fine structure, and cytokinin biosynthesis
WILLIAM NEWCOMB, KUNIHIKO SYONO, and JOHN G. TORREY 1891

Nicholson, R.L.
Characterization of augmented potassium uptake in the seedling primary root of inbred maize (*Zea mays*)
HUGH FRICK, RALPH L. NICHOLSON, and LOYAL F. BAUMAN 1128

Nielsen, J.
Inheritance of virulence of loose smut of wheat, *Ustilago tritici*, on the differential cultivars Renfrew, Florence × Aurore, Kota, and Little Club
J. NIELSEN 260

Nigam, S.N.
Apical dominance in the rhizome of *Agrapyron repens*. The relation of amino acid composition to bud activity
S.N. NIGAM and GORDON I. MCINTYRE 2001

Nishida, A.
Synchronized zoosporangial formation in liquid culture of *Phytophthora capsici*
M. YOSHIKAWA, A. NISHIDA, and H. MASAGO 844

Nolan, R.A.
Regeneration of protoplasts of *Entomophthora egressa*, a fungal pathogen of the eastern hemlock looper
GARY B. DUNPHY and RICHARD A. NOLAN 107

Morphogenesis of protoplasts of *Entomophthora egressa* in simplified culture media
GARY B. DUNPHY and RICHARD A. NOLAN 3046

Nordgaard, J.T.
Slow leaf rust development on durum wheat
G.D. STATLER, J.T. NORDGAARD, and J.E. WATKINS 1539

Nozzolillo, C.
Identification of *Vicia* seedlings
CONSTANCE NOZZOLILLO 2439

Nurit, F.
Interactions entre mitochondries et chloroplastes dans la cellule. II. Action du DBMIB, de l'antimycine A et du FCCP sur la spore de *Funaria hygrometrica*
D. CHEVALLIER, R. DOUCE et F. NURIT 1650

O'Donnell, K.L.
Zygosporogenesis in *Gilbertella persicaria*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 662

Azygosporogenesis in *Mucor azygosporus*
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2712

Morphogenesis of azygospores induced in *Gilbertella persicaria* (+) by imperfect hybridization with *Rhizopus stolonifer* (-)
K.L. O'DONNELL, J.J. ELLIS, C.W. HESSELTINE, and G.R. HOOPER 2721

Oakley, B.R.
Mitosis and cell division of *Cryptomonas* (Cryptophyceae)
BERL R. OAKLEY and THANA BISALPUTRA 2789

Oechel, W.C.
Physiological aspects of the ecology of *Dicranum fuscescens* in the subarctic. II. Seasonal patterns of organic nutrient content
PETER R. HICKLENTON and WALTER C. OECHEL 2168

Okada, W.T.
Structural studies of *Chondrus crispus*: the effect of extraction of carrageenan
E.L. MCCANDLESS, W.T. OKADA, J.N.A. LOTT, C.M. VOLLMER, and E.M. GORDON-MILLS 2053

Ord, G.N.St.G.
The effect of pH and ABA on the hydraulic conductivity of *Nitella* membranes
G.N.St.G. ORD, I.F. CAMERON, and D.S. FENSOM 1

Orlikowski, L.B.
Soil-borne propagule populations of isolates of *Phytophthora cryptogea* and *P. parasitica* in relation to inhibition of growth of tobacco plants
LESZEK B. ORLIKOWSKI and JAMES W. HENDRIX 23

Orton, T.J.
Chromosome elimination in a complex hybrid of the genus *Hordeum*
THOMAS J. ORTON and WILLIAM TAI 3023

Oswald, T.H.
Herbicide tolerance developed in cell suspension cultures of perennial white clover
T.H. OSWALD, A.E. SMITH, and D.V. PHILLIPS 1351

Ouellette, G.B.
Formes d'inclusions osmiophiles dans les cellules de *Ceratocystis ulmi*
HÉLÈNE CHAMBERLAND et G.B. OUELLETTE 695

Caractéristiques ultrastructurales de *Ceratocystis ulmi* en milieux naturel et artificiel
HÉLÈNE CHAMBERLAND et G.B. OUELLETTE 1579

Owens, J.N.
Vegetative bud development and cone differentiation in *Abies amabilis*
JOHN N. OWENS and MARJE MOLDER 992

Development of long-shoot terminal buds of western white pine (*Pinus monticola*)
JOHN N. OWENS and MARJE MOLDER 1308

Seed-cone differentiation and sexual reproduction in western white pine (*Pinus monticola*)
JOHN N. OWENS and MARJE MOLDER 2574

Sexual reproduction of *Abies amabilis*
JOHN N. OWENS and MARJE MOLDER 2653

Bud development in *Picea glauca*. I. Annual growth cycle of vegetative buds and shoot elongation as they relate to date and temperature sums
JOHN N. OWENS, MARJE MOLDER, and HILARY LANGER 2728

Bud development in *Picea glauca*. II. Cone differentiation and early development
JOHN N. OWENS and MARJE MOLDER 2746

Paden, J.W.
Two new species of *Phillipsia* from Central America
J.W. PADEN 2685

Palmerley, R.A.
Patterns of conidial release by *Helminthosporium turcicum* on sweet corn under controlled environmental conditions
R.A. PALMERLEY and W.G. BENEDICT 1991

Park, P.
Effect of a host-specific toxin (AM-toxin I) produced by *Alternaria mali*, an apple pathogen, on the ultrastructure of plasma membrane of cells in apple and Japanese pear leaves
PYOYUN PARK, MITSUYA TSUDA, YOSHIHARU HAYASHI, and TAMIO UENO 2383

Parmelle, J.A.
The Fungi of Ontario. II. Erysiphaceae (mildews)
J.A. PARMELLE **1940**

Parups, E.V.
A histochemical study of starch, lipids, and certain enzymes in senescing rose stems
J.M. MOLNAR and E.V. PARUPS **617**

Pasutti, D.W.
Cytology and breeding behaviour of some *Impatiens* hybrids and their backcross progeny
DAVID W. PASUTTI, JACK L. WEIGLE, and
ALLEN R. BECK **296**

Patrick, T.W.
Cytokinin levels in healthy and *Verticillium*-infected tomato plants
T.W. PATRICK, R. HALL, and R.A. FLETCHER **377**

Paulsen, G.M.
Estimating dry-matter accumulation in soybean
J.L. HEILMAN, E.T. KANEMASU, and
G.M. PAULSEN **2196**

Pearson, R.C.
Teliospore germination and basidiospore formation in *Gymnosporangium juniperi-virginianae*: a regression model of temperature and time effects
R.C. PEARSON, H.S. ALDWINCKLE, and R.C. SEEM **2832**

Peterson, R.L.
Root cap structure in the fern *Ophioglossum petiolatum*: light and electron microscopy
R.L. PETERSON and J.D. BRISSON **1861**

Peterson, W.
Dicranum ontariense Peterson: a new name for a North American endemic moss
WILBUR PETERSON **986**

Phillips, D.V.
Herbicide tolerance developed in cell suspension cultures of perennial white clover
T.H. OSWALD, A.E. SMITH, and D.V. PHILLIPS **1351**

Phillips, T.L.
Monocyclic *Psaronius* from the lower Pennsylvanian of the Illinois Basin
WILLIAM A. DiMICHELE and TOM L. PHILLIPS **2514**

Pickard, B.G.
Electrical characteristics of cells from leaves of *Lycopersicon*
JOHN M. CHEESEMAN and BARBARA G. PICKARD **497**

Depolarization of cell membranes in leaves of *Lycopersicon* by extract containing Ricca's factor
JOHN M. CHEESEMAN and BARBARA G. PICKARD **511**

Piquemal, M.
Variation saisonnière des cristaux d'oxalate de calcium des tissus de Vigne vierge
JEAN CALMÉS et MICHEL PIQUEMAL **2075**

Pirozynski, K.A.
The generic names *Paranectria* and *Paranectriella* and their synonyms
D.L. HAWKSWORTH and K.A. PIROZYNSKI **2555**

Platt, H.W.
The effects of substrate, temperature, and photoperiod on conidiation of *Pyrenophora tritici-repentis*
HAROLD W. PLATT, R.A.A. MORRALL, and
H.E. GRUEN **254**

Plummer, M.L.
Evaluating stem conducting tissue as an estimator of leaf area in four woody angiosperms
R.H. WARING, H.L. GHOLZ, C.C. GRIER, and
M.L. PLUMMER **1474**

Pollack, F.G.
Tunicago uniolae gen. et. sp. nov., a pycnidial fungus with unusual conidia
B.C. SUTTON and FLORA G. POLLACK **326**

Powell, M.J.
Morphological variations in a new species of *Entophlyctis*. I. The species concept
MARTHA J. POWELL and WILLIAM J. KOCH **1668**

Morphological variations in a new species of *Entophlyctis*. II. Influence of growth conditions on morphology
MARTHA J. POWELL and WILLIAM J. KOCH **1686**

Pramer, D.
A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. SCHENCK, W.B. KENDRICK, and D. PRAMER **977**

Erratum: A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. SCHENCK, W.B. KENDRICK, and D. PRAMER **1859**

Pringle, R.B.
Role of toxins in etiology of root rot disease of wheat
ROSS B. PRINGLE **1801**

Ragetli, H.W.J.
Characteristics of clover primary leaf necrosis virus, a new spherical isolate from *Trifolium pratense*
H.W.J. RAGETLI and M. ELDER **2122**

Rahe, J.E.
Effects of 15% CO_2 on the accumulation of the phytoalexin phaseollin in *Phaseolus vulgaris* in response to mechanical injury and to infection by *Colletotrichum lindemuthianum*
ROBERT M. ARNOLD and JAMES E. RAHE **867**

Raj, T.R.N.
Genera coelomycetum. XIII. ***Plectronidium*** gen. nov.
T.R. NAG RAJ **625**

Miscellaneous microfungi. II.
T.R. NAG RAJ **757**

Ypsilonia, *Acanthotheciella*, and ***Kazulia*** gen. nov.
T.R. NAG RAJ **1599**

Raman, K.
Changes during development in the compartmentalization patterns of extractable gibberellin-like substances in 'single' and 'double' genotypes of *Nigella damascena*
K. Raman and R.I. Greyson 2115

Rasmussen, H.P.
Electron microprobe analyses of salt distribution in the halophyte *Salicornia pacifica* var. *utahensis*
D.J. Weber, H.P. Rasmussen, and W.M. Hess 1516

Rast, D.
Architecture of the *Agaricus bisporus* spore wall
D. Rast and G.O. Hollenstein 2251

Rauser, W.E.
The effects of soil factors on the distribution of *Agrostis gigantea* on a mine waste site
Gary D. Hogan, Gerard M. Courtin, and Wilfried E. Rauser 1038

Copper tolerance in clones of *Agrostis gigantea* from a mine waste site
Gary D. Hogan, Gerard M. Courtin, and Wilfried E. Rauser 1043

Reader, R.J.
Bog ericad flowers: self-compatibility and relative attractiveness to bees
R.J. Reader 2279

Stochastic simulation of patch formation by *Hieracium floribundum* (Compositae) in abandoned pasture land
R.J. Reader and A.G. Thomas 3075

Real, M.C.
A new basic chromosome number in the genus *Lotus*
M.D. Angulo and M.C. Real 1848

Redhead, S.A.
The genus *Neolecta* (**Neolectaceae** fam. nov., Lecanorales, Ascomycetes) in Canada
Scott A. Redhead 301

The genus *Mitrula* in North America
Scott A. Redhead 307

The Endomycetaceae: new concepts, new taxa
Scott A. Redhead and David W. Malloch 1701

Reid, J.
Transmission and scanning electron microscope observations on the trapping of nematodes by *Dactylaria brochopaga*
James A. Dowsett, J. Reid, and L. Van Caeseele 2945

Light microscope observations on the trapping of nematodes by *Dactylaria candida*
James A. Dowsett and J. Reid 2956

Transmission and scanning electron microscope observations on the trapping of nematodes by *Dactylaria candida*
James A. Dowsett and J. Reid 2963

Rhoades, F.M.
Growth rates of the lichen *Lobaria oregana* as determined from sequential photographs
Frederick M. Rhoades 2226

Ribeiro, O.K.
Electron microscopy of early gametangial interaction in *Phytophthora megasperma* var. *sojae*
Don E. Hemmes and Olaf K. Ribeiro 436

Riggle, J.H.
Peronospora manshurica on a nonhost and on resistant, susceptible, and intermediate soybeans
John H. Riggle 153

Ritterbusch, A.
A new technique for the study of floral histology and morphogenesis: tissue strips made from orientated and cleared thick microtome sections
A. Ritterbusch 1373

Robb, J.
Ultrastructure of wilt syndrome caused by *Verticillium dahliae*. III. Chronological symptom development in sunflower leaves
Jane Robb, Lloyd Busch, Jean D. Brisson, and B.C. Lu 139

Roberts, T.M.
Factors maintaining a disjunct community of *Liatris spicata* and other prairie species in Ontario, Canada
T.M. Roberts, T. Robson, and P.M. Catling 593

Robinson, G.G.C.
The primary productivity of submerged macrophytes in West Blue Lake, Manitoba
R.J.R. Love and G.G.C. Robinson 118

Robinson, J.R.
Studies of the pathway of HCN formation from glycine in a psychrophilic basidiomycete
E.W.B. Ward, A.N. Starratt, and J.R. Robinson 2065

Robson, T.
Factors maintaining a disjunct community of *Liatris spicata* and other prairie species in Ontario, Canada
T.M. Roberts, T. Robson, and P.M. Catling 593

Rogers, J.D.
A new *Hypoxylon* species with appendaged, ornamented ascospores
Jack D. Rogers 372

Notes on *Rosellinia buxi* and conidal *Xylaria*
Jack D. Rogers and Marlene M. Malmgren 1051

Surface features of the light-colored ascospores of some applanate *Hypoxylon* species
Jack D. Rogers 2394

Rogerson, C.T.
Pulveria, a new genus of Xylariaceae (Ascomycetes)
DAVID MALLOCH and CLARK T. ROGERSON 1505

Rohringer, R.
Lack of reproducibility in bioassays for gene-specific RNA reportedly involved in the resistance response of wheat to stem rust
R. ROHRINGER, N.K. HOWES, W.K. KIM, and D.J. SAMBORSKI 851

Effect of blasticidin S, ethionine, and polyoxin D on stem rust development and host-cell necrosis in wheat near-isogenic for gene *Sr6*
W.K. KIM, R. ROHRINGER, D.J. SAMBORSKI, and N.K. HOWES 568

Histological studies on host-cell necrosis conditioned by the *Sr6* gene for resistance in wheat to stem rust
D.J. SAMBORSKI, W.K. KIM, R. ROHRINGER, N.K. HOWES, and R.J. BAKER 1445

Ronald, W.P.
Assembly of particles from southern bean mosaic virus and sowbane mosaic virus components
J.H. TREMAINE and W.P. RONALD 2274

Rose, D.
Uptake of magnesium by suspension cultures of plant cells (*Ipomoea* sp.)
I.A. VELIKY, D. ROSE, and M.W. ZINK 1143

Growth of plant cell suspension cultures with ammonium as the sole source of nitrogen
S.M. MARTIN, DYSON ROSE, and VIRGINIA HUI 2838

Rosen, P.M.
Effects of ambient ozone pretreatment on transpiration and susceptibility to ozone injury
V.C. RUNECKLES and P.M. ROSEN 193

Erratum: Effects of ambient ozone pretreatment on transpiration and susceptibility to ozone injury
V.C. RUNECKLES and P.M. ROSEN 1443

Ross, S.M.
Note on lack of effect of ethylene on water permeability, electroosmotic efficiency, or transcellular water flow of the plasma membranes in *Nitella*
D.S. FENSOM and S.M. ROSS 615

Rossi, M.G.C.
Deux Laboulbéniales (Ascomycetes) nouvelles, parasites de Zuphiini *Coleoptera, Carabidae)*
WALTER ROSSI et M. GRAZIELLA CESARI ROSSI 1575

Rossi, W.
Deux Laboulbéniales (Ascomycetes) nouvelles, parasites de Zuphiini *Coleoptera, Carabidae)*
WALTER ROSSI et M. GRAZIELLA CESARI ROSSI 1575

Rothwell, G.W.
Anatomically preserved plants from the Middle Eocene (Allenby Formation) of British Columbia
JAMES F. BASINGER and GAR W. ROTHWELL 1984

Runeckles, V.C.
Effects of ambient ozone pretreatment on transpiration and susceptibility to ozone injury
V.C. RUNECKLES and P.M. ROSEN 193

Erratum: Effects of ambient ozone pretreatment on transpiration and susceptibility to ozone injury
V.C. RUNECKLES and P.M. ROSEN 1443

Saeed, S.A.
Separation of horseradish peroxidase isoenzymes by preparative polyacrylamide gel electrophoresis
SHEIKH A. SAEED and JOSEPHINE CUTHBERT 2474

Samborski, D.J.
Histological studies on host-cell necrosis conditioned by the *Sr6* gene for resistance in wheat to stem rust
D.J. SAMBORSKI, W.K. KIM, R. ROHRINGER, N.K. HOWES, and R.J. BAKER 1445

Effect of blasticidin S, ethionine, and polyoxin D on stem rust development and host-cell necrosis in wheat near-isogenic for gene *Sr6*
W.K. KIM, R. ROHRINGER, D.J. SAMBORSKI, and N.K. HOWES 568

Lack of reproducibility in bioassays for gene-specific RNA reportedly involved in the resistance response of wheat to stem rust
R. ROHRINGER, N.K. HOWES, W.K. KIM, and D.J. SAMBORSKI 851

Samson, R.A.
Sporodiniella umbellata, an entomogenous fungus of the Mucorales from cocoa farms in Ecuador
HARRY C. EVANS and ROBERT A. SAMSON 2981

Sand, S.A.
A developmental study of the stamens in a male-sterile tobacco hybrid
G.S. HICKS, J. BELL, and S.A. SAND 2234

Sangster, A.G.
Electron-probe microassay studies of silicon deposits in the roots of two species of *Andropogon*
A.G. SANGSTER 880

Sattler, R.
Development of the epiphyllous appendages of *Begonia hispida* var. *cucullifera*: implications for comparative morphology
ROLF SATTLER and UTA MAIER 411

Floral organogenesis of *Limnocharis flava*
R. SATTLER and V. SINGH 1076

The structure of the epiphyllous appendages of *Begonia hispida* var. *cucullifera*
UTA MAIER and ROLF SATTLER 264

Development of the inflorescence and flower of *Sagittaria cuneata*
V. SINGH and R. SATTLER **1087**

Floral development of *Aponogeton natans* and *A. undulatus*
V. SINGH and R. SATTLER **1106**

Savoy, C.F.
Electropherogram pattern similarity of seed proteins from 21 different soybean (*Glycine max*) varieties
CLIFTON F. SAVOY **2245**

Sawhney, V.K.
Cell growth, wall deposition, and correlated fine structure of colchicine-treated lettuce hypocotyl cells
L.M. SRIVASTAVA, V.K. SAWHNEY, and M. BONETTEMAKER **902**

Inhibitors of RNA and protein synthesis and the kinetics of growth of lettuce hypocotyls induced by gibberellic acid
V.K. SAWHNEY, L.M. SRIVASTAVA, and D. MORLEY **1829**

Scannerini, S.
Unusual plastids in an endomycorrhizal root
SILVANO SCANNERINI and PAOLA BONFANTE-FASOLO **2471**

Schenck, S.
A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. SCHENCK, W.B. KENDRICK, and D. PRAMER **977**

Erratum: A new nematode-trapping hyphomycete and a reevaluation of *Dactylaria* and *Arthrobotrys*
S. SCHENCK, W.B. KENDRICK, and D. PRAMER **1859**

Schneider, A.
Localisation et comportement du mycélium de *Taphrina deformans* dans le mésophylle et sous la cuticule des feuilles de pêcher (*Prunus persica*)
ALAIN SCHNEIDER et ROBERT DARGENT **2485**

Schoknecht, J.D.
Peridial composition of white fructifications in the Trichiales (*Perichaena* and *Dianema*)
JEAN D. SCHOKNECHT and HAROLD W. KELLER **1807**

Revision of *Torula* species. *Rutola*, a new genus for *Torula graminis*
J.L. CRANE and JEAN D. SCHOKNECHT **3013**

Scobie, J.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. FENSOM, E.J. WILLIAMS, D. AIKMAN, J.E. DALE, J. SCOBIE, K.W.O. LEDINGHAM, A. DRINKWATER, and J. MOORBY **1787**

Scotter, G.W.
Bryophytes of Nahanni National Park and vicinity, Northwest Territories, Canada
WILLIAM C. STEERE, GEORGE W. SCOTTER, and KJELD HOLMEN **1741**

Bryophytes from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada
CHARLES D. BIRD, GEORGE W. SCOTTER, WILLIAM C. STEERE, and ALFRED H. MARSH **2879**

Seagull, R.W.
Rapid cytoplasmic responses of oat coleoptiles to cytochalasin B, auxin, and colchicine
D. DES S. THOMAS, D.M. DUNN, and R.W. SEAGULL **1797**

Seem, R.C.
Teliospore germination and basidiospore formation in *Gymnosporangium juniperi-virginianae*: a regression model of temperature and time effects
R.C. PEARSON, H.S. ALDWINCKLE, and R.C. SEEM **2832**

Semple, J.C.
Cytotaxomony of *Chrysopsis* and *Heterotheca* (Compositae-Astereae): a new interpretation of phylogeny
JOHN C. SEMPLE **2503**

Sequeira, L.
Expression of resistance in bean pods to an incompatible isolate of *Pseudomonas syringae*
D.M. WEBSTER and L. SEQUEIRA **2043**

Shacklock, P.F.
The cultivation of *Chondrus crispus*. Factors affecting growth under greenhouse conditions
A.C. NEISH, P.F. SHACKLOCK, C.H. FOX, and F.J. SIMPSON **2263**

Sharma, C.P.
Relative effectiveness of certain heavy metals in producing toxicity and symptoms of iron deficiency in barley
S.C. AGARWALA, S.S. BISHT, and C.P. SHARMA **1299**

Sharp, E.L.
Trisomic analysis of genes for resistance to scald and net blotch in several barley cultivars
H.E. BOCKELMAN, E.L. SHARP, and R.F. ESLICK **2142**

Sheard, R.W.
Conditions affecting in vivo nitrate reductase activity in chlorophyllous tissues
RICHARD WYN JONES and ROBERT W. SHEARD **896**

Sim, S.L.
Influence of temperature and photoperiod on growth and yield components in oats (*Avena sativa*)
H.R. KLINCK and S.L. SIM **96**

Siminovitch, D.
Isolation of protoplasts from unhardened and hardened tissues of winter rye and wheat
A. Ian de la Roche, W.A. Keller, J. Singh, and D. Siminovitch 1181

Simola, L.K.
The effect of lead, cadmium, arsenate, and fluoride ions on the growth and fine structure of *Sphagnum nemoreum* in aseptic culture
Liisa Kaarina Simola 426

Simpson, F.J.
The cultivation of *Chondrus crispus*. Factors affecting growth under greenhouse conditions
A.C. Neish, P.F. Shacklock, C.H. Fox, and F.J. Simpson 2263

Sinclair, J.
Polychlorinated biphenyls and their effects on photosynthesis and respiration
J. Sinclair, S. Garland, T. Arnason, P. Hope, and M. Granville 2679

Singh, A.P.
The subcellular organization of stomatal initials in sugarcane leaves: the guard and subsidiary mother cells
A.P. Singh 2801

Singh, J.
Isolation of protoplasts from unhardened and hardened tissues of winter rye and wheat
A. Ian de la Roche, W.A. Keller, J. Singh, and D. Siminovitch 1181

Singh, R.N.
A new species of *Moellerodiscus* from India
R.N. Singh and V.P. Tewari 1646

Singh, V.
Development of the inflorescence and flower of *Sagittaria cuneata*
V. Singh and R. Sattler 1087

Floral development of *Aponogeton natans* and *A. undulatus*
V. Singh and R. Sattler 1106

Floral organogenesis of *Limnocharis flava*
R. Sattler and V. Singh 1076

Skorapad, W.P.
Formation of microsclerotia and chlamydospores from conidia of *Alternaria brassicae*
A. Tsuneda and W.P. Skoropad 1276

The *Alternaria brassicae* – *Nectria inventa* host-parasite interface
A. Tsuneda and W.P. Skoropad 448

Ultrastructure of oospore development in *Albugo candida* on rapeseed
J.P. Tewari and W.P. Skoropad 2348

Slocum, R.D.
Light and electron microscopic investigations in the Dictyonemataceae (Basidiolichens)
Robert D. Slocum and Gary L. Floyd 2565

Smith, A.E.
Herbicide tolerance developed in cell suspension cultures of perennial white clover
T.H. Oswald, A.E. Smith, and D.V. Phillips 1351

Solsky, B.A.
Nutrient cycling in a *Carex lacustris* wetland
John M. Bernard and Betsy A. Solsky 630

Soto, C.
Effect of naphthalene and aqueous crude oil extracts on the green flagellate *Chlamydomonas angulosa*. III. Changes in cellular composition
C. Soto, J.A. Hellebust, and T.C. Hutchinson 2765

Sparrow, F.K.
Two new uniporous species of *Rhizophydium*
Frederick K. Sparrow 1501

Some bog chytrids
F.K. Sparrow and Lene Lange 1879

Srivastava, L.M.
Cell growth, wall deposition, and correlated fine structure of colchicine-treated lettuce hypocotyl cells
L.M. Srivastava, V.K. Sawhney, and M. Bonettemaker 902

Inhibitors of RNA and protein synthesis and the kinetics of growth of lettuce hypocotyls induced by gibberellic acid
V.K. Sawhney, L.M. Srivastava, and D. Morley 1829

Srivastava, O.P.
An interrelationship among peroxidase, IAA oxidase, and polyphenol oxidase from peanut cells
O.P. Srivastava and R.B. van Huystee 2630

Starratt, A.N.
Studies of the pathway of HCN formation from glycine in a psychrophilic basidiomycete
E.W.B. Ward, A.N. Starratt, and J.R. Robinson 2065

Statler, G.D.
Slow leaf rust development on durum wheat
G.D. Statler, J.T. Nordgaard, and J.E. Watkins 1539

Steere, W.C.
Bryophytes of Nahanni National Park and vicinity, Northwest Territories, Canada
William C. Steere, George W. Scotter, and Kjeld Holmen 1741

Bryophytes from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada
Charles D. Bird, George W. Scotter, William C. Steere, and Alfred H. Marsh 2879

Steeves, T.A.
Experimental studies on the shoot apex of *Helianthus annuus*: the effect of surgical bisection on quiescent cells in the apex
E.L. Davis and T.A. Steeves **606**

Steponkus, P.L.
The diffusional water permeability of *Elodea* leaf cells as measured by nuclear magnetic resonance
Darryl G. Stout, Robert M. Cotts, and Peter L. Steponkus **1623**

Stevens, R.A.
The morphogenesis of substomatal structures in *Polypodium vulgare*
R.A. Stevens and E.S. Martin **2873**

Stout, D.G.
The diffusional water permeability of *Elodea* leaf cells as measured by nuclear magnetic resonance
Darryl G. Stout, Robert M. Cotts, and Peter L. Steponkus **1623**

Subden, R.E.
The conversion of [2-^{14}C]mevalonic acid into triterpenes and tetraterpenes by cell-free extracts of a *Neurospora crassa* albino mutant
G.S. Bobowski, W.G. Barker, and R.E. Subden **2137**

Subramanian, C.V.
Beejasamuha and *Sutravarana*, two new genera of coprophilous hyphomycetes
C.V. Subramanian and K.V. Chandrashekara **245**

Bahusutrabeeja, a new genus of the Hyphomycetes
C.V. Subramanian and D. Jayarama Bhat **2202**

Sullivan, V.I.
Erratum: Diploidy, polyploidy, and agamospermy among species of *Eupatorium* (Compositae)
Victoria I. Sullivan **1443**

Susalla, A.A.
Young plastids in shoot apical cells of a genetic albino strain of Nicotiana (Solanaceae)
Anne A. Susalla and Paul G. Mahlberg **1429**

Sutton, B.C.
Tunicago uniolae gen. et. sp. nov., a pycnidial fungus with unusual conidia
B.C. Sutton and Flora G. Pollack **326**

A revision of *Monochaetiella* (Deuteromycotina)
B.C. Sutton and Frank DiCosmo **2535**

Sylvia, D.M.
Frequency spectrum analysis of plant storage tissue during deteriora.ion
Terry A. Tattar and David M. Sylvia **2437**

Syono, K.
Development of an ineffective pea root nodule: morphogenesis, fine structure, and cytokinin biosynthesis
William Newcomb, Kunihiko Syono, and John G. Torrey **1891**

Tai, W.
Chromosome elimination in a complex hybrid of the genus *Hordeum*
Thomas J. Orton and William Tai **3023**

Taira, T.
Effects of ε-amino-*n*-caproic acid and L-lysine on the development of hybrid embryos of triticale (x *Triticosecale*)
Tomoaki Taira and E.N. Larter **2330**

The effects of variation in ambient temperature alone and in combination with ε-amino-*n*-caproic acid on development of embryos from wheat–rye crosses (*T. turgidum* var. *durum* cv. Jori × *S. cereale*)
Tomoaki Taira and E.N. Larter **2335**

Tattar, T.A.
Frequency spectrum analysis of plant storage tissue during deterioration
Terry A. Tattar and David M. Sylvia **2437**

Terracina, F.C.
Ultrastructure of conidiogenesis in the thallic Hyphomycete *Oidiodendron griseum*
Fred C. Terracina **580**

Tewari, J.P.
Ultrastructure of oospore development in *Albugo candida* on rapeseed
J.P. Tewari and W.P. Skoropad **2348**

Tewari, V.P.
A new species of *Moellerodiscus* from India
R.N. Singh and V.P. Tewari **1646**

Tharp, T.P.
Biology and host range of *Haliphthoros milfordensis*
T.P. Tharp and C.E. Bland **2936**

Thomas, A.G.
Stochastic simulation of patch formation by *Hieracium floribundum* (Compositae) in abandoned pasture land
R.J. Reader and A.G. Thomas **3075**

Thomson, W.W.
Adhesion of the Boston ivy tendril
Anton G. Endress and William W. Thomson **918**

Tilton, D.L.
Seasonal growth and foliar nutrients of *Larix laricina* in three wetland ecosystems
Donald L. Tilton **1291**

Timar, D.
Physiological and ultrastructural changes occurring during germination of sclerotia of *Sclerotium rolfsii*
I. Chet, D. Timar, and Y. Henis **1137**

Tinline, R.D.
Multiple infections of subcrown internodes of wheat (*Triticum aestivum*) by common root rot fungi
R.D. TINLINE 30

Todd, E.R.
Genetics of *Gracilaria* sp. (Rhodophyceae, Gigartinales). IV. Mitotic recombination and its relationship to mixed phases in the life history
JOHN P. VAN DER MEER and EDNA R. TODD 2810

Torrey, J.G.
Prenodule formation and primary nodule development in roots of *Comptonia* (Myricaceae)
DALE CALLAHAM and JOHN G. TORREY 2306

Development of an ineffective pea root nodule: morphogenesis, fine structure, and cytokinin biosynthesis
WILLIAM NEWCOMB, KUNIHIKO SYONO, and JOHN G. TORREY 1891

Toth, R.
Anatomy and ultrastructure of the haustorium in *Comandra* (Santalaceae)
RONALD TOTH and JOB KUIJT 455

Cytochemical localization of acid phosphatase in endophyte cells of the semiparasitic angiosperm *Comandra umbellata* (Santalaceae)
RONALD TOTH and JOB KUIJT 470

Cytochemical studies on the gland in the primary haustorium of *Phthirusa* (Loranthaceae)
RONALD TOTH and JOB KUIJT 2011

Touzé-Soulet, J.M.
Effets de la carence en biotine sur la composition des parois cellulaires d'*Hypomyces chlorinus*
J.M. TOUZÉ-SOULET et R. DARGENT 227

Tremaine, J.H.
Assembly of particles from southern bean mosaic virus and sowbane mosaic virus components
J.H. TREMAINE and W.P. RONALD 2274

Tsuda, M.
Effect of a host-specific toxin (AM-toxin I) produced by *Alternaria mali*, an apple pathogen, on the ultrastructure of plasma membrane of cells in apple and Japanese pear leaves
PYOYUN PARK, MITSUYA TSUDA, YOSHIHARU HAYASHI, and TAMIO UENO 2383

Tsuneda, A.
The *Alternaria brassicae* – *Nectria inventa* host–parasite interface
A. TSUNEDA and W.P. SKOROPAD 448

Formation of microsclerotia and chlamydospores from conidia of *Alternaria brassicae*
A. TSUNEDA and W.P. SKOROPAD 1276

Tu, C.C.
Cytology and ultrastructure of *Thanatephorus cucumeris* and related taxa of the *Rhizoctonia* complex
C.C. TU, JAMES W. KIMBROUGH, and H.C. ALDRICH 2419

Tu, J.C.
Structural organization of the rhizobial root nodule of alfalfa
J.C. TU 35

Tulloch, A.P.
Composition of epicuticular waxes of some grasses
A.P. TULLOCH and L.L. HOFFMAN 853

Turkington, R.A.
Neighbour relationships in grass–legume communities. I. Interspecific contacts in four grassland communities near London, Ontario
ROY A. TURKINGTON, PAUL B. CAVERS, and LONNIE W. AARSSEN 2701

Tyree, M.T.
Resistance to water flow in *Fagus grandifolia* leaves
M.T. TYREE and Y.N.S. CHEUNG 2591

Cell wall elastic properties of *Chara corallina*
H. VINTERS, J. DAINTY, and M.T. TYREE 1933

Tyson, H.
Preliminary characterization of peroxidase isozymes isolated from two flax genotrophs
M.A. FIELDES, C.L. DEAL, and H. TYSON 1465

Ueno, T.
Effect of a host-specific toxin (AM-toxin I) produced by *Alternaria mali*, an apple pathogen, on the ultrastructure of plasma membrane of cells in apple and Japanese pear leaves
PYOYUN PARK, MITSUYA TSUDA, YOSHIHARU HAYASHI, and TAMIO UENO 2383

Van Caeseele, L.
Transmission and scanning electron microscope observations on the trapping of nematodes by *Dactylaria brochopaga*
JAMES A. DOWSETT, J. REID, and L. VAN CAESEELE 2945

van der Meer, J.P.
Genetics of *Gracilaria* sp. (Rhodophyceae, Gigartinales). IV. Mitotic recombination and its relationship to mixed phases in the life history
JOHN P. VAN DER MEER and EDNA R. TODD 2810

van Huystee, R.B.
Porphyrin and peroxidase synthesis in cultured peanut cells
R.B. VAN HUYSTEE 1340

An interrelationship among peroxidase, IAA oxidase, and polyphenol oxidase from peanut cells
O.P. SRIVASTAVA and R.B. VAN HUYSTEE 2630

Van Sickle, G.A.
Seasonal periodicity in the discharge of *Pucciniastrum goeppertianum* basidiospores
G.A. VAN SICKLE **745**

VanEtten, H.D.
Modifying the growth habit of the filamentous fungus *Fusarium solani* to facilitate replica plating procedures
HANS D. VANETTEN and H. GUNNAR KOLMARK **848**

Vartanian, N.
Influence de la sécheresse sur la morphologie du système racinaire du *Carex setifolia*
S. DA, C. HUBAC et N. VARTANIAN **1236**

Veliky, I.A.
Uptake of magnesium by suspension cultures of plant cells (*Ipomoea* sp.)
I.A. VELIKY, D. ROSE, and M.W. ZINK **1143**

Nitrogen assimilation and regulation of nitrate and nitrite reductases in cultured *Ipomoea* cells
M.W. ZINK and I.A. VELIKY **1557**

Verbeek, R.B.
The occurrence of wall deposits in phloem cells of cherry trees infected with little cherry disease
ROSALINDA BOASSON VERBEEK **2344**

Verhagen, S.A.
Shoots from Douglas-fir cultures
LAWSON L. WINTON and SHIRLEY A. VERHAGEN **1246**

Vinters, H.
Cell wall elastic properties of *Chara corallina*
H. VINTERS, J. DAINTY, and M.T. TYREE **1933**

Vitt, D.H.
The genus *Sphagnum* in Alberta
DALE H. VITT and RICHARD E. ANDRUS **331**

A taxonomic study of the genus *Crosbya* (= *Bellia*; Musci)
DALE H. VITT **2079**

Vollmer, C.M.
Structural studies of *Chondrus crispus*: the effect of extraction of carrageenan
E.L. MCCANDLESS, W.T. OKADA, J.N.A. LOTT, C.M. VOLLMER, and E.M. GORDON-MILLS **2053**

von Rudloff, E.
Chemosystematic studies in the genus *Abies*. III. Leaf and twig oil analysis of amabilis fir
E. VON RUDLOFF and R.S. HUNT **3087**

Ward, E.W.B.
Studies of the pathway of HCN formation from glycine in a psychrophilic basidiomycete
E.W.B. WARD, A.N. STARRATT, and J.R. ROBINSON **2065**

Waring, R.H.
Evaluating stem conducting tissue as an estimator of leaf area in four woody angiosperms
R.H. WARING, H.L. GHOLZ, C.C. GRIER, and M.L. PLUMMER **1474**

Watkins, J.E.
Slow leaf rust development on durum wheat
G.D. STATLER, J.T. NORDGAARD, and J.E. WATKINS **1539**

Waygood, E.R.
Stabilizing effect of benzimidazole on 6-phosphofructokinase activity in wheat leaves
BOLANLE A.A. WILLIAMS, H.R. GODAVARI, and E.R. WAYGOOD **219**

Weaks, T.E.
Canavanine utilization by *Phytophthora* sp.
T.E. WEAKS and F.L. BINDER **1322**

Wearstler, K.A., Jr.
Genetic diversity of yellow birch seedlings in Michigan
KENNETH A. WEARSTLER, JR. and BURTON V. BARNES **2778**

Weber, D.J.
Electron microprobe analyses of salt distribution in the halophyte *Salicornia pacifica* var. *utahensis*
D.J. WEBER, H.P. RASMUSSEN, and W.M. HESS **1516**

Webster, D.M.
Expression of resistance in bean pods to an incompatible isolate of *Pseudomonas syringae*
D.M. WEBSTER and L. SEQUEIRA **2043**

Webster, T.R.
Morphology and development of aerial roots of *Selaginella martensii* grown in moist containers
TERRY R. WEBSTER and RICHARD JAGELS **2149**

Weigle, J.L.
Cytology and breeding behaviour of some *Impatiens* hybrids and their backcross progeny
DAVID W. PASUTTI, JACK L. WEIGLE, and ALLEN R. BECK **296**

Wein, R.W.
Viable seed populations by soil depth and potential site recolonization after disturbance
JANICE M. MOORE and ROSS W. WEIN **2408**

Depth of underground plant organs and theoretical survival during fire
MARGUERITE A. FLINN and ROSS W. WEIN **2550**

Changes in understory vegetation with increasing stand age in New Brunswick forests: species composition, cover, biomass, and nutrients
DAVID A. MACLEAN and ROSS W. WEIN **2818**

White, J.A.
The influence of fixation procedure on the ultrastructure of the host-endophyte interface of vesicular-arbuscular mycorrhizae
D.E. Carling, J.A. White, and M.F. Brown **48**

Whitney, H.S.
Pezizella chapmanii n.sp., a discomycete associated with bark beetle galleries in western conifers
H.S. Whitney and A. Funk **888**

Whitney, R.D.
Variation of *Polyporus tomentosus* in cultural characteristics and pathogenicity on conifer seedlings
R.D. Whitney and W.P. Bohaychuk **1389**

Whittick, A.
The reproduction and phenology of *Antithamnion cruciatum* (Rhodophyta: Ceramiaceae) in insular Newfoundland
Alan Whittick and Robert G. Hooper **520**

Whittier, D.P.
Gametophytes of *Lycopodium obscurum* as grown in axenic culture
Dean P. Whittier **563**

Williams, B.A.A.
Stabilizing effect of benzimidazole on 6-phosphofructokinase activity in wheat leaves
Bolanle A.A. Williams, H.R. Godavari, and E.R. Waygood **219**

Williams, E.J.
Translocation of ^{11}C from leaves of *Helianthus*: preliminary results
D.S. Fensom, E.J. Williams, D. Aikman, J.E. Dale, J. Scobie, K.W.O. Ledingham, A. Drinkwater, and J. Moorby **1787**

Williams, G.J., III
Temperature relations of gas exchange in altitudinal populations of *Taraxacum officinale*
Paul R. Kemp, George J. Williams III, and David S. May **2496**

Winton, L.L.
Shoots from Douglas-fir cultures
Lawson L. Winton and Shirley A. Verhagen **1246**

Wisbey, B.D.
Controlling soil water matric potential in root disease studies
B.D. Wisbey, T.A. Black, and R.J. Copeman **825**

Wong, B.L.
Host resistance to the fir engraver beetle. 3. Lesion development and containment of infection by resistant *Abies grandis* inoculated with *Trichosporium symbioticum*
Betty L. Wong and Alan A. Berryman **2358**

Yoshikawa, M.
Effect of cyclic AMP on catabolite-repressed zoosporangial formation in *Phytophthora capsici*
M. Yoshikawa and H. Masago **840**

Synchronized zoosporangial formation in liquid culture of *Phytophthora capsici*
M. Yoshikawa, A. Nishida, and H. Masago **844**

Zimmermann-Fillon, C.
Variations qualitatives et quantitatives des carbures terpéniques au cours de la croissance des rameaux et des aiguilles du Pin maritime: étude comparée de huit phénotypes
C. Zimmermann-Fillon et C. Bernard-Dagan **1009**

Zink, M.W.
Uptake of magnesium by suspension cultures of plant cells (*Ipomoea* sp.)
I.A. Veliky, D. Rose, and M.W. Zink **1143**

Nitrogen assimilation and regulation of nitrate and nitrite reductases in cultured *Ipomoea* cells
M.W. Zink and I.A. Veliky **1557**

Zryd, J.-P.
Métabolisme de l'acide indolyl-3-acétique dans les cultures de cellules d'*Acer pseudoplatanus* cultivés in vitro
F. Maillard et J.-P. Zryd **2530**